VIESMANN

VITODENS 300

Gas fired condensing boiler
4.5 to 66.0 kW
as multi-boiler system up to 264 kW

Datasheet

Part nos. and prices: see price list

File in:
Vitotec folder, register 7

Vitodens 300

Type WB3A

Gas fired wall mounted condensing boiler,
with modulating MatriX-compact gas burner,
for open or balanced flue operation

For natural gas and LPG

VITODENS 300

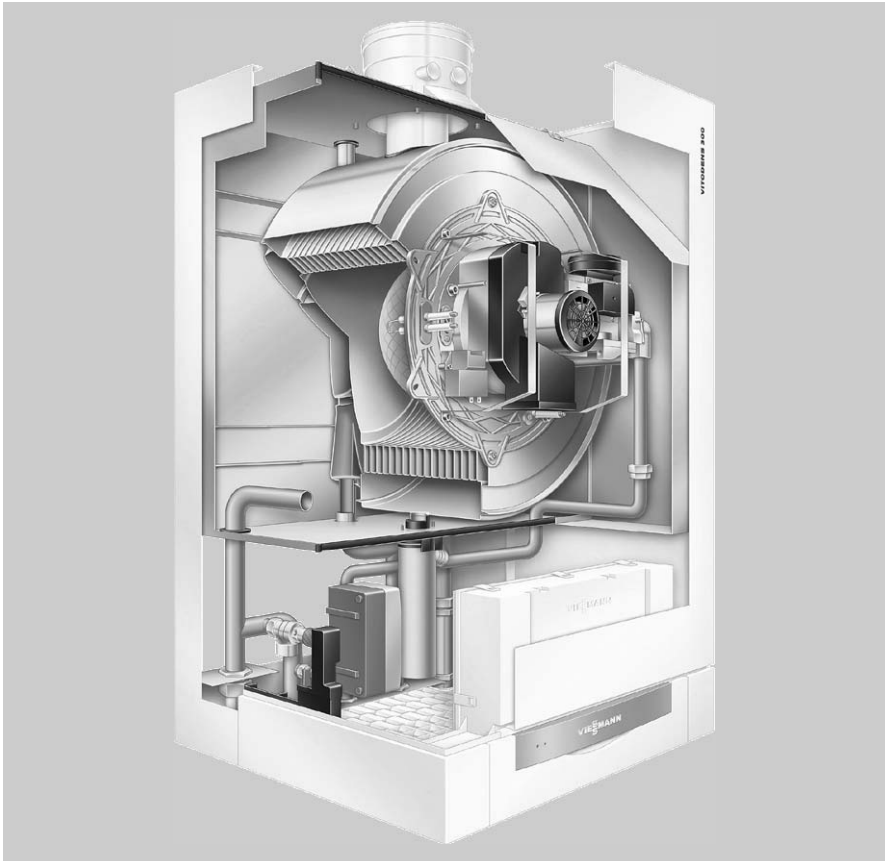
The combination of top technology:
The modulating MatriX-compact gas burner and the proven stainless steel Inox-Radial heating surface guarantee a standard efficiency up to 109%. This reduces heating costs and protects the environment.
Like all wall mounted condensing boilers from Viessmann, Vitodens 300 too is equipped with a stainless steel Inox-Radial heating surface. And it incorporates all advantages of the heat transfer principle, of its design and its high self-cleaning effect.
With its modulation range of 1:4, the MatriX-compact gas burner saves in terms of energy consumption and emissions. Its extremely clean combustion lets it perform substantially better than the limits set for the "Blue Angel".

Vitodens 300 is equipped with automatic flue gas adaptation. This constantly adapts to changing conditions, for example weather changes. And that ensures permanently good combustion.
The MatriX-compact gas burner with its quite combustion and the modulating, electronic BUS-controlled pump operating with reduced flow noise, ensure a pleasantly quiet operation.
The combi version of Vitodens 300 is equipped with a comfort plate heat exchanger. This delivers DHW at a constant outlet temperature – without delay.

Benefits at a glance

- Gas fired condensing boiler as wall mounted model, 4.5 to 66 kW.
- Standard efficiency: up to 109%.
- The stainless steel Inox-Radial heating surface ensures high operational reliability and a long service life.
- MatriX-compact gas burner, modulation range 1:4.
- The emissions fall substantially below the limits set for the "Blue Angel" certificate of environmental excellence.
- Low power consumption through governed AC fan and heating circuit pump.
- As a condensing combination boiler: High DHW convenience as a result of its integrated DHW Quick-System and comfort control – i.e. instant hot water at a constant temperature.
- Vitotronic control units for room temperature-dependent or weather-compensated mode, with integral diagnostic system and Optolink laptop interface; capable of communicating with Vitodata.
  With the Vitotronic 333 cascade control unit, rated outputs up to 264 kW are feasible.
- Particularly easy to install, maintain and service, due to modular design generous wiring chamber.
- Automatic flue gas adaptation ensures permanently high efficiency.
- Particularly quiet operation.
- Space saving, because clearances at the boiler sides are no longer required.
- Vitodens 300 with 4.5 to 12.0 kW automatically regulates to achieve optimum combustion values. The gas family or type require no selection.
- Flexible connections to adapt third party boiler installations enable easy replacement of alternative makes.

Vitodens 300 – 49 and 66 kW



Tested quality

VDE designation approval applied for.

CE designation in accordance with current EC Directives.

Clean combustion. Performs significantly better than the limits set by the "Blue Angel" certificate of environmental excellence to RAL UZ 61.

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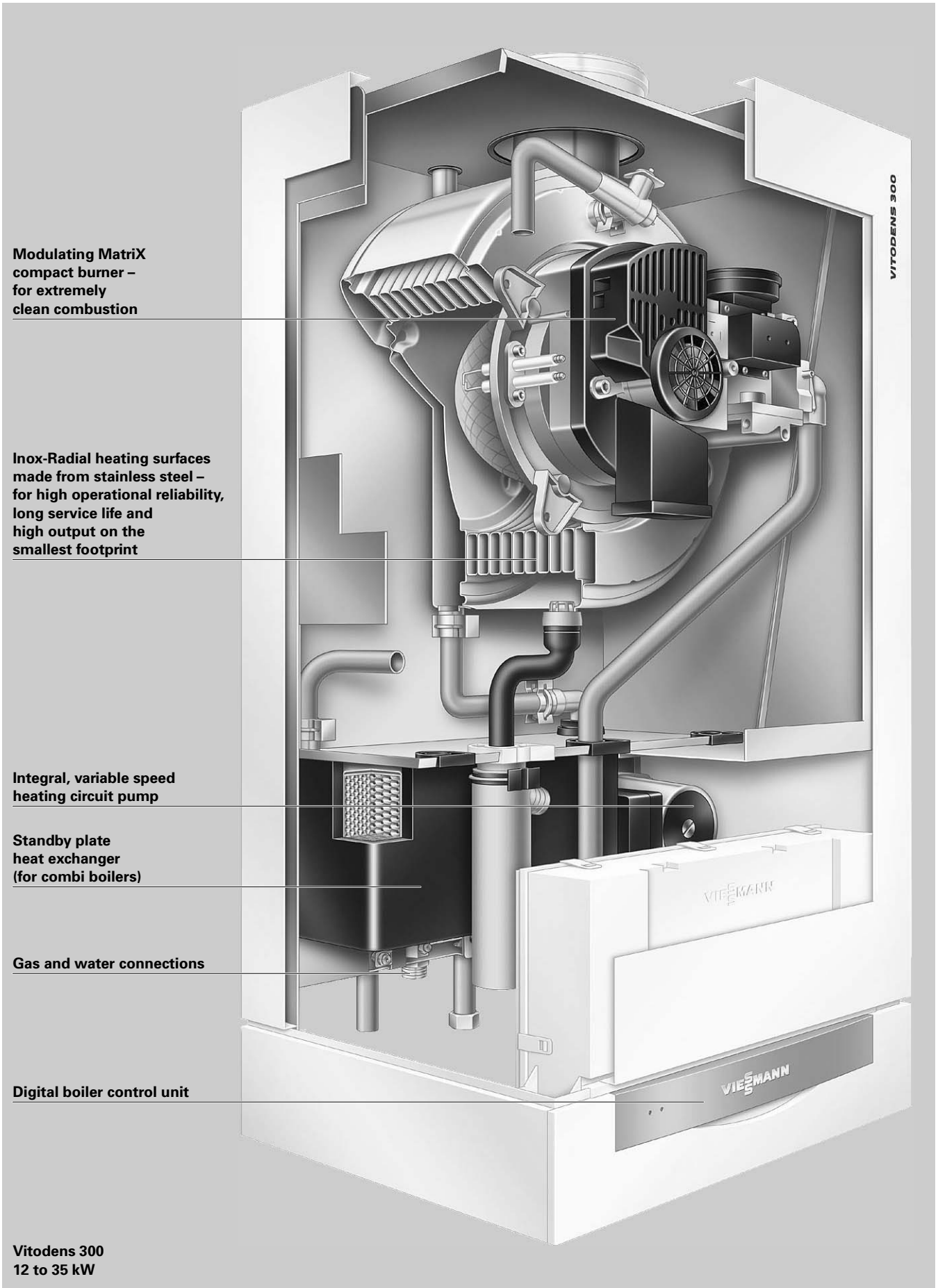
Modulating MatriX compact burner – for extremely clean combustion
Inox-Radial heating surfaces made from stainless steel – for high operational reliability, long service life and high output on the smallest footprint
Integral, variable speed heating circuit pump
Standby plate heat exchanger (for combi boilers)
Gas and water connections
Digital boiler control unit
VITODENS 300
VIESMANN

Vitodens 300
12 to 35 kW

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Specification

Gas fired boiler, series B and C, **Category I_{2ELL} (natural gas version)** **Category $II_{2ELL\ 3P}$ (LPG version)**		**Gas fired boiler**					**Gas fired combination boiler**
Rated output range[*1]							
T_V/T_R = 50/30 °C	kW	4.5-12.0/16.0[*2, *3]	6.6-26.0	8.7-35.0	12.2-49.0	16.6-66.0	6.6-26.0
T_V/T_R = 80/60 °C	kW	4-11	6-23.7	8-32	11-44.6	15-60.1	6-23.7
Rated thermal load	kW	4.2-16.7	6.3-24.7	8.3-33.3	11.5-46.3	15.6-62.2	6.3-24.7
Product ID		CE-0085 BO 0338					
Gas supply pressure							
Natural gas	mbar		20	20	20	20	20
LPG	mbar		50	50	50	50	50
Max. permiss. gas supply pressure[*4]							
Natural gas	mbar		25.0	25.0	25.0	25.0	25.0
LPG	mbar		57.5	57.5	57.5	57.5	57.5
Max. power consumption (incl. circulation pump for 4 to 35 kW)	W		120	120	85	85	120
Weight	kg		50	52	90	90	55
Capacity heat exchanger	litres		5.0	5.6	9.5	9.5	5.0
Heating water volume flow at 200 mbar residual head	l/h		1050	1380	—[*5]	—[*5]	1050
Max. volume flow (limits for the use of a low loss header)	l/h		1400	1600	3500	3500	1400
Rated circulation water volume at ΔT = 20 K	l/h		1032	1376	1892	2580	1032
Permiss. operating pressure	bar		3	3	3	3	3
Connections							
Boiler flow and return	G (male thread)		¾″	¾″	1½″	1½″	¾″
Safety valve	R (female thread)		¾″	¾″	—	—	¾″
	G (male thread)		—	—	1″	1″	—
Dimensions							
Length	mm		380	380	550	550	380
Width	mm		480	480	600	600	480
Height	mm		850	850	900	900	850
Height incl. flue pipe bend (accessory)	mm		1066	1066	1200	1200	1066
Height with DHW cylinder installed below the boiler	mm		1925	1925	—	—	—
Gas connection	R (male thread)		½″	½″	¾″	¾″	½″
Standby instantaneous water heater[*6]							
Capacity DHW	litres	—	—	—	—	—	1.00
Heating water	litres	—	—	—	—	—	0.70
Hot and cold water connections	G (male thread)	—	—	—	—	—	½″
Permissible operating pressure (DHW side)	bar	—	—	—	—	—	10
Outlet temperature (adjustable)	°C	—	—	—	—	—	38-57
Continuous DHW output	kW	—	—	—	—	—	24
for DHW temperature rise from 10 to 45 °C	l/h	—	—	—	—	—	590
Drawing rate	litres/min	—	—	—	—	—	3-8

*[*1] Details to EN 677.*
*[*2] Rated output for DHW heating.*
*[*3] Available from October 2004. Specification on request.*
*[*4] If the gas supply pressure is higher than the maximum permitted value, a separate gas governor must be installed upstream of the system.*
*[*5] Heating circuit pump available as accessory.*
*[*6] Minimum pressure of the cold water connection 1 bar.*

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Gas fired boiler			Gas fired boiler					Gas fired combination boiler
Rated output range								
T_V/T_R = 50/30 °C		kW	4.5-12.0/16.0*1	6.6-26.0	8.7-35.0	12.2-49.0	16.6-66.0	6.6-26.0
T_V/T_R = 80/60 °C		kW	4-11	6-23.7	8-32	11-44.6	15-60.1	6-23.7
Connection values relative to max. output								
with gas	with H_{uB}							
Natural gas E	9.45 kWh/m^3 34.01 MJ/m^3	m^3/h		2.65	3.52	4.90	6.69	2.65
Natural gas LL	8.13 kWh/m^3 29.25 MJ/m^3	m^3/h		3.08	4.10	5.64	7.77	3.08
LPG	12.79 kWh/m^3 46.04 MJ/m^3	kg/h		1.94	2.59	3.62	4.94	1.94
Flue gas values*2								
Flue gas value group to G 635/G 636				G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}	G_{52}/G_{51}
Temperature (at a return temperature of 30 °C)								
– at rated output		°C		45	45	35	40	45
– at partial load		°C		35	35	33	35	35
Temperature (at a return temperature of 60 °C)		°C		70	70	65	70	70
Mass flow rate								
– for natural gas								
– at rated output		kg/h		47.3	63.2	81.2	110.6	47.3
– at partial load		kg/h		11.8	15.7	21.1	27.7	11.8
– for LPG								
– at rated output		kg/h		46.4	61.0	78.2	106.7	48.4
– at partial load		kg/h		11.5	15.4	18.0	26.6	11.5
Available draught		Pa		100	100	100	100	100
		mbar		1.0	1.0	1.0	1.0	1.0
Standard efficiency at								
– T_V/T_R = 40/30 °C		%		109	109	109	109	109
– T_V/T_R = 75/60 °C		%		104	104	104	104	104
Average condensate volume for natural gas and								
– T_V/T_R = 50/30 °C		litres/day		11-13	15-17	14-19	23-28	11-13
– T_V/T_R = 80/60 °C		litres/day		8-10	10-12	11-15	18-22	8-10
Internal diameter of pipe to expansion vessel		DN		20	20	20	20	20
safety valve		DN		15	15	20	20	15
Condensate connection		Hose coupling ∅ mm		20-24	20-24	20-24	20-24	20-24
Flue outlet		Internal ∅ mm		80	80	100	100	80
Ventilation pipe		External ∅ mm		125	125	150	150	125

*1 *Rated output for DHW heating.*

*2 *Calculation values for sizing the flue gas system to EN 13384.*
Flue gas temperatures measured as gross values at 20 °C combustion air temperature.
The details for partial load refer to an output of 30% of rated output. Calculate the flue gas mass flow rate accordingly when the partial load differs from that stated above (subject to the burner mode).
The flue gas temperature at a return temperature of 30 °C is decisive for sizing the flue gas system.
The flue gas temperature at a return temperature of 60 °C is used to determine the application range of flue pipes with maximum permissible operating temperatures.

▶ *For the specification of DHW cylinders and Viessmann system design components, see separate datasheets.*

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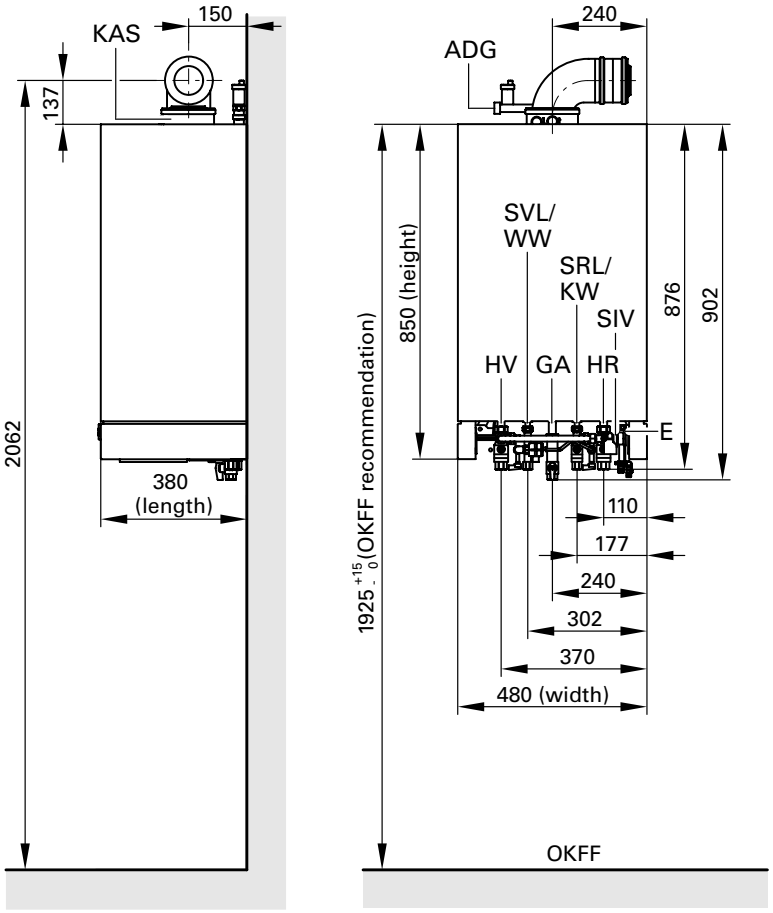
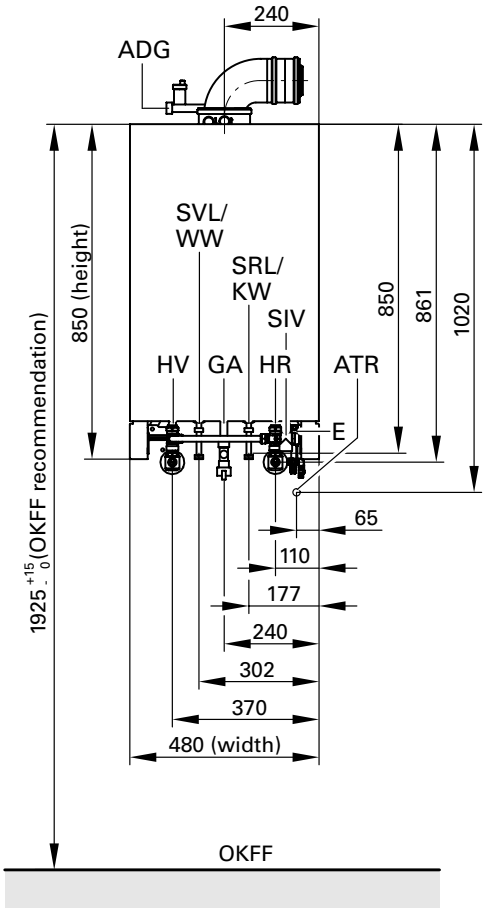
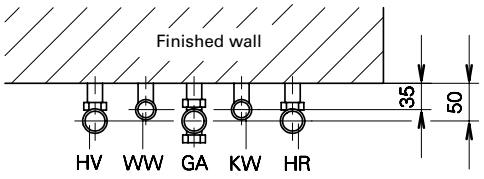
Vitodens 300, 12.0 to 35.0 kW

Installation on finished walls



Installation on unfinished walls





*[*1]Obligatory in conjunction with DHW cylinders installed below the boiler. Otherwise, recommendation only.*

Key to symbols

ADG	Expansion vessel G ¾"
ATR	Drain funnel connection
E	Drain
GA	Gas connection
HR	Heating return
HV	Heating flow
KAS	Boiler adaptor
OKFF	Top edge finished floor
SIV	Safety valve

Gas fired combination boilers only:

KW	Cold water G ½"
WW	Hot water G ½"

Gas fired boilers only:

SRL	Cylinder return G ¾"
SVL	Cylinder flow G ¾"

Note

Prior to the boiler installation, prepare the connections on site.

Route the required electrical supply cables on site and into the boiler at the points indicated (see page 17).

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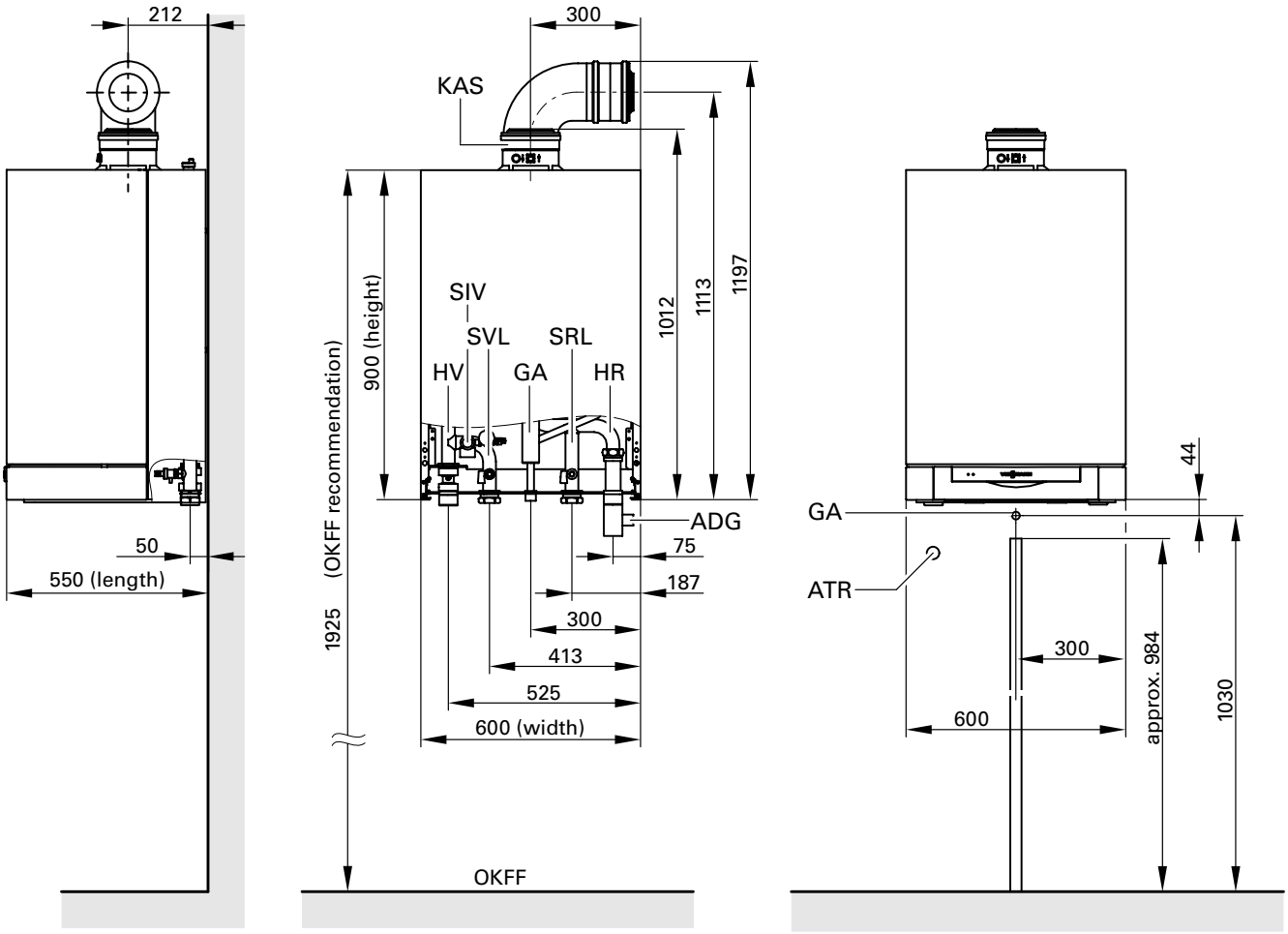
Vitodens 300 from 49 kW



Key to symbols

ADG Expansion vessel (G 1")
ATR Drain funnel connection
GA Gas connection
HR Heating return
HV Heating flow
KAS Boiler adaptor
OKFF Top edge finished floor
SIV Safety valve
SRL Cylinder return G 1½"
SVL Cylinder flow G 1½"

Multi-boiler systems

For details regarding multi-boiler systems, see Vitodens Technical Guide and price list.

Note

Prior to the boiler installation, prepare the connections on site and into the boiler at the points indicated (see page 17).

Route the required electrical supply cables.

Specification – circulation pumps and heads

Vitodens 300, 4.5 to 12.0 kW on request

Variable speed heating circuit pump

The pump speed and therefore the flow rate is relayed to the pump, and is set by the control unit subject to outside temperature and switching times for the central heating or reduced mode via an internal data BUS.

Individually match the minimum and maximum speed plus the speed during reduced mode to the existing heating system using the control unit codes.
In the delivered condition, the minimum pump capacity (code address E7) is set to 30%, and the maximum pump capacity (code address E6) to 50% for 26 kW or to 70% for 35 kW.

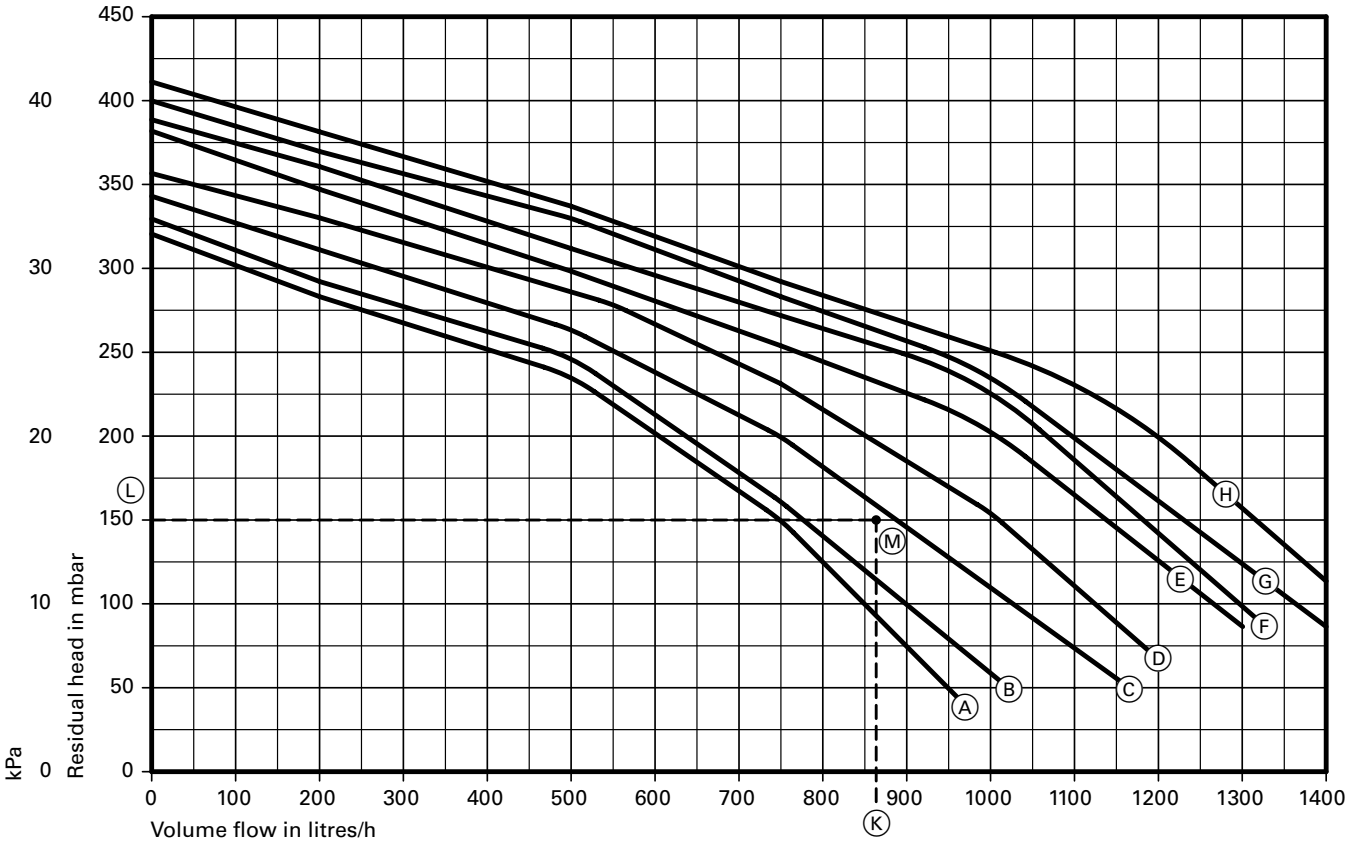
Using the diagram, the flow rate can be adjusted to the respective system conditions.
Matching the flow rate of the circulation pump to the individual system conditions reduces the power consumption of the heating system.

Vitodens 300, 6.6 to 35.0 kW

Circulation pump VIUPE 60 BUS

Rated voltage	V ~	230
Rated current	A max.	0.45
	min.	0.21
Power consumption	W max.	100
	min.	50
	as delivered condition	
	– 26 kW	65
	– 35 kW	80

Residual head of the integral circulation pump



Curve	Capacity Circulation pump	Setting Code address E6
Ⓐ	30%	E6:030
Ⓑ	40%	E6:040
Ⓒ	50%	E6:050
Ⓓ	60%	E6:060
Ⓔ	70%	E6:070
Ⓕ	80%	E6:080
Ⓖ	90%	E6:090
Ⓗ	100%	E6:100

Example
- Vitodens 300, 6.6 to 26.0 kW
- Design temperatures 75/55 °C
- Radiator heating system, heat demand 20 kW
  ≙ Volume flow 860 litres/h Ⓚ
- Pressure drop 150 mbar Ⓛ
- Design point Ⓜ

Optimum pump curve according to diagram:
Ⓒ = code address E6:050.

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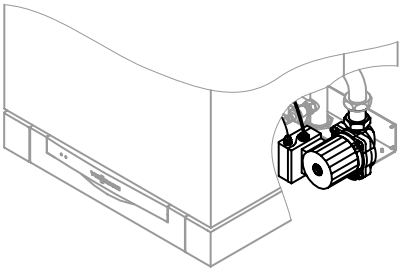
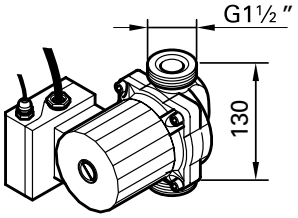
Vitodens 300 from 49 kW

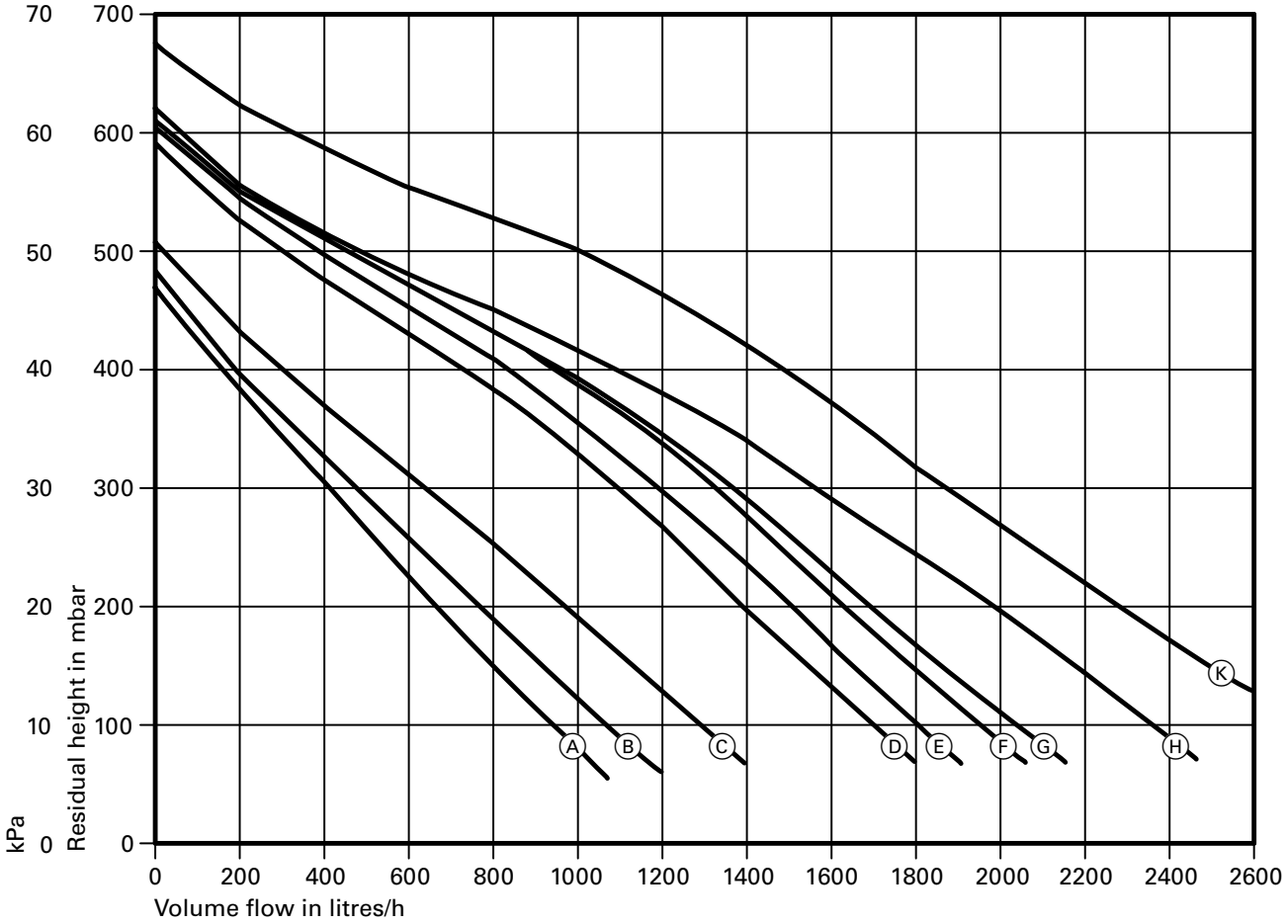
Circulation pump VIRS 7 BUS
variable speed, ready to plug in
for installation into the boiler or as
external pump for pipe installation.

Rated voltage	V ~	230
Rated current	A max.	0.55
	min.	0.37
Condenser	µF	3.5
Power	W max.	126
consumption	min.	42
	as delivered condition	93





Residual head of the circulation pump



Curve	Capacity Circulation pump	Setting Code address E6
Ⓐ	30%	E6:030
Ⓑ	40%	E6:040
Ⓒ	50%	E6:050
Ⓓ	60%	E6:060
Ⓔ	65%	E6:065
Ⓕ	70%	E6:070
Ⓖ	80%	E6:080
Ⓗ	90%	E6:090
Ⓚ	100%	E6:100

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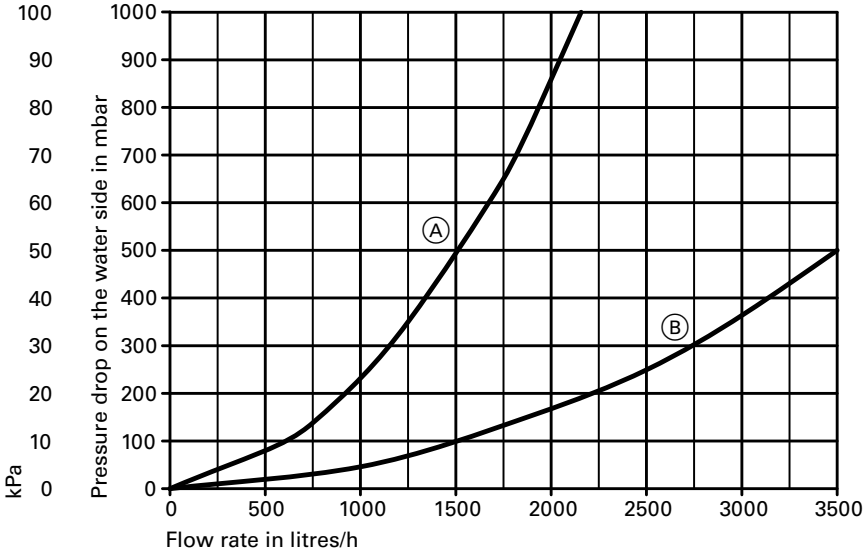
Pressure drop (primary circuit)

For the design of an on-site heating circuit pump.



Ⓐ Vitodens 300 to 35.0 kW
Ⓑ Vitodens 300 from 49.0 kW

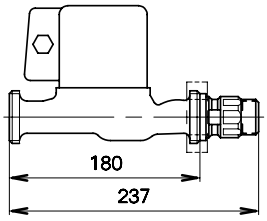
DHW heating with DHW cylinder

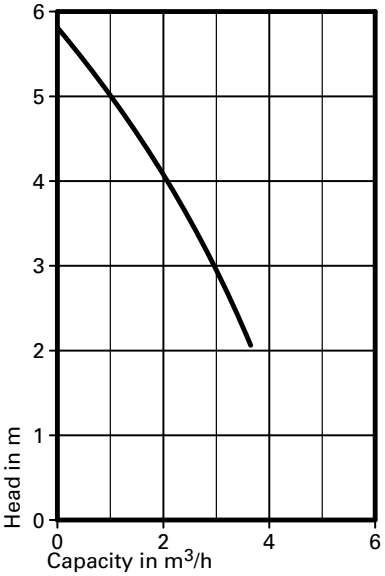
Vitodens 300 gas fired boiler up to 35.0 kW
DHW cylinder, see separate datasheet.

Vitodens 300 gas fired boiler from 49.0 kW
This boiler may be combined with DHW cylinders from Viessmann (see register 17), subject to their respective specification.
Vertical DHW cylinder, available in white as Vitocell-V 100 to 300 litres, as Vitocell-V 300 (type EVA) to 200 litres and Vitocell-B 100 with 300 litres (product description with supplement W).
All other DHW cylinders are available in Vitosilver.

Cylinder loading pump

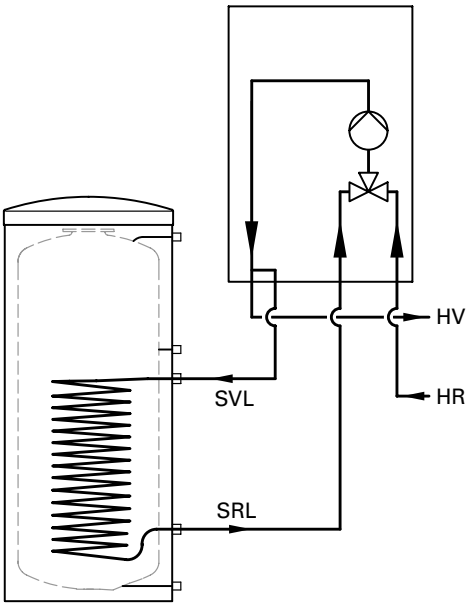
Part no.		7339 468
Pump type		VIRS 30/ 6-1
Voltage	V ~	230
Rated current	A	0.63
Condenser	µF	3.6
Power consumption	W	110-140
Connection	R (fem. thr.)	1¼"
Connecting cable	m	4.7



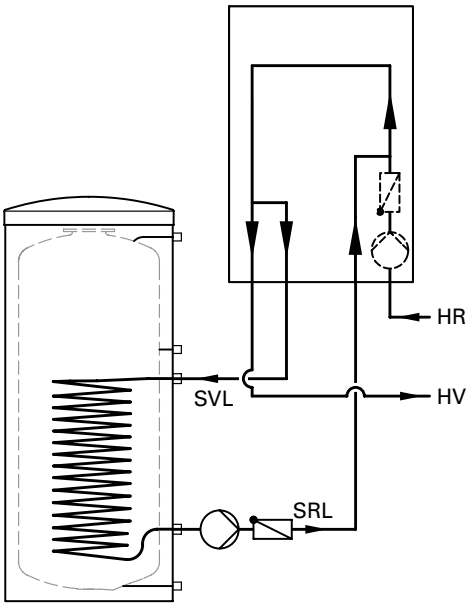


Connection diagram for DHW cylinder

Vitodens 300 to 35.0 kW
Including connection set and integral DHW circulation pump (via three-way valve)



Vitodens 300 from 49.0 kW
With external DHW circulation pump (accessory)



Pre-installation in unfinished buildings for Vitodens 300 (up to 35 kW) installation directly to the wall – installation on finished walls

Required accessories for installations without DHW cylinder

Installation template
incl. fixing parts, valves and gas stop cock Rp ½" with integral thermal safety shut-off valve

Additional requirements when connecting a DHW cylinder

Connection set for DHW cylinders

Note
Ensure a clearance of 700 mm in front of Vitodens or the DHW cylinder for maintenance purposes.
Maintenance spaces to the l.h. or r.h. side of Vitodens are **not** required.

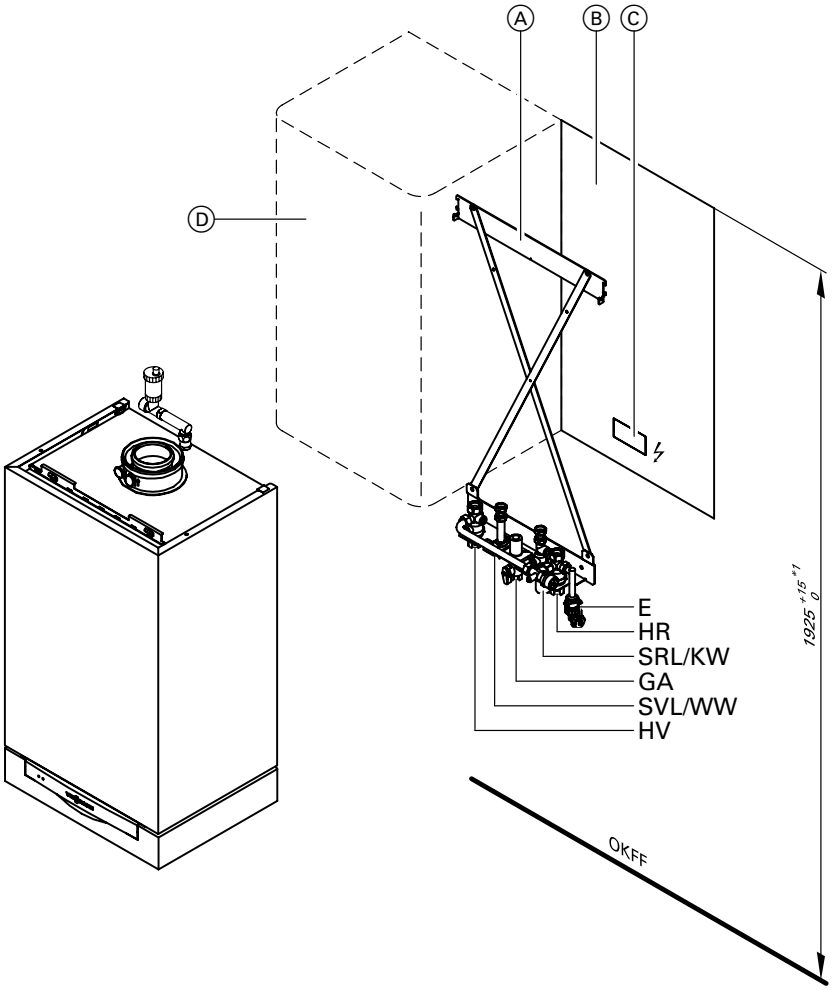


Illustration: Gas fired combination boiler connection

Key to symbols
E Drain
GA Gas connection Rp ½"
HR Heating return Rp ¾"
HV Heating flow Rp ¾"
OKFF Top edge finished floor

Only for gas fired combination boilers
KW Cold water G ½"
WW Hot water G ½"

Only for gas fired boilers
SRL Cylinder return G ¾"
SVL Cylinder flow G ¾"

*[*1]Obligatory in conjunction with DHW cylinders installed below the boiler. Otherwise, recommendation only.*

Ⓐ Installation template
Ⓑ Vitodens
Ⓒ Area for electrical supply cables. Allow all cables to protrude approx. 1200 mm from the wall.
Ⓓ Wall mounted DHW cylinder (if installed)

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Pre-installation in unfinished buildings for Vitodens 300 (up to 35 kW) installation directly to the wall – installation on unfinished walls

Required accessories for installations without DHW cylinder

Installation template
incl. fixing parts, valves and gas stop cock R ½" with integral thermal safety shut-off valve

Additional requirements when connecting a DHW cylinder

Connection set for DHW cylinders

Note
Ensure a clearance of 700 mm in front of Vitodens or the DHW cylinder for maintenance purposes.
Maintenance spaces to the l.h. or r.h. side of Vitodens are **not** required.

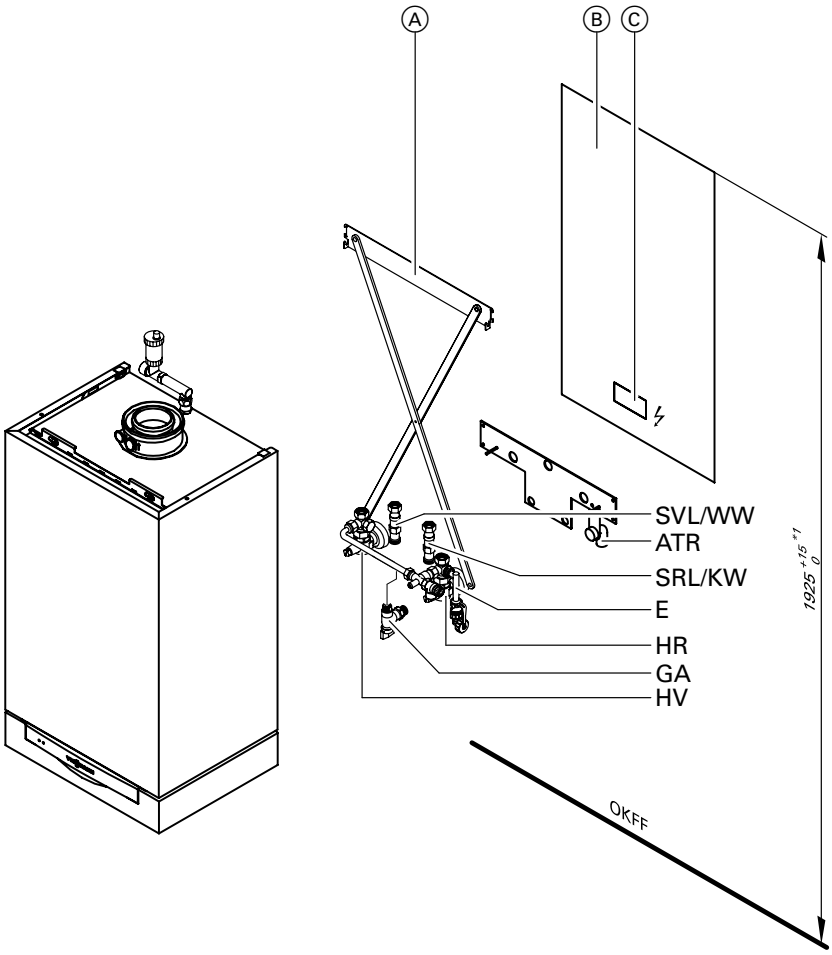

Illustration: Gas fired combination boiler connection

Key to symbols
ATR Drain funnel connection R 1"
E Drain
GA Gas connection R ½"
HR Heating return G ¾"
HV Heating flow G ¾"
OKFF Top edge finished floor

Only for gas fired combination boilers
KW Cold water G ½"
WW Hot water G ½"

Only for gas fired boilers
SRL Cylinder return G ¾"
SVL Cylinder flow G ¾"

*1 *Obligatory in conjunction with DHW cylinders installed below the boiler. Otherwise, recommendation only.*

Ⓐ Installation template
Ⓑ Vitodens
Ⓒ Area for electrical supply cables. Allow all cables to protrude approx. 1200 mm from the wall.

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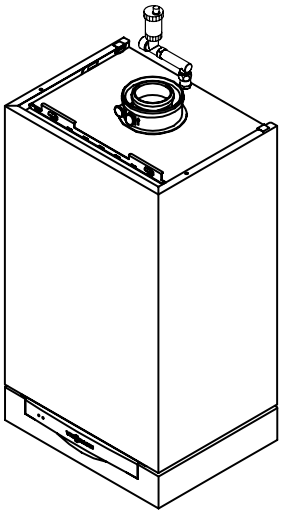
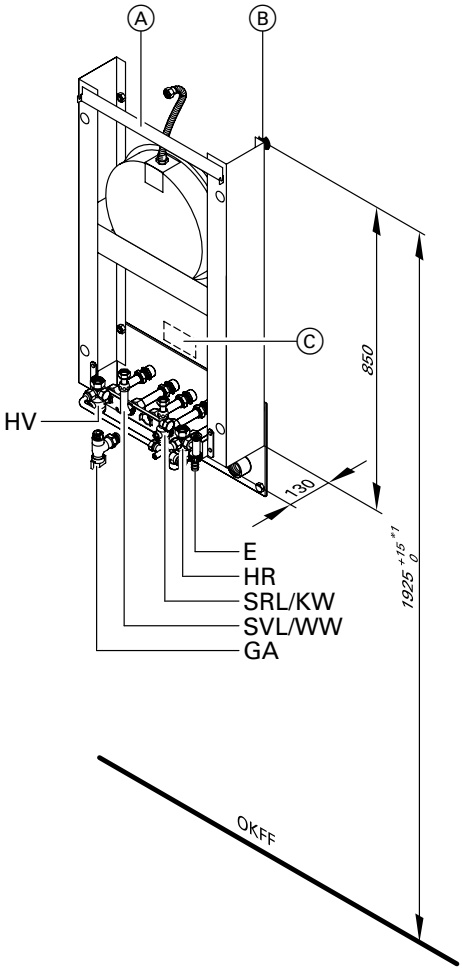
Pre-installation of Vitodens 300 (up to 35 kW) in unfinished buildings with mounting frame





Mounting frame
With diaphragm expansion vessel (nominal capacity 11 litres), valves, fixings parts and gas angle valve G ¾" incl. thermal safety shut-off valve
- for gas fired combination boiler
  - for installation on finished walls
    - with solder fittings
    - with compression fittings
  - for installation on unfinished walls

- for gas fired boiler
  - for installation on finished walls
    - with solder fittings
    - with compression fittings
  - for installation on unfinished walls

All valves are located under the boiler cover.

Please note
Ensure a clearance of 700 mm in front of Vitodens 300 or the DHW cylinder for maintenance purposes.
Maintenance spaces to the l.h. or r.h. side of Vitodens 300 are **not** required.
The mounting frame must **not** be plastered over.

Key to symbols

E	Drain
GA	Gas connection R ½"
HR	Heating return G ¾"
HV	Heating flow G ¾"
OKFF	Top edge finished floor

Gas fired combination boilers only:

KW	Cold water G ½"
WW	Hot water G ½"

Gas fired boilers only:

SRL	Cylinder return G ¾"
SVL	Cylinder flow G ¾"

**1 Compulsory in conjunction with DHW cylinders installed below the boiler. Otherwise, recommendation only.*

Ⓐ Mounting frame Vitodens 300
Ⓑ Boiler top edge
Ⓒ Area for electrical supply cables
Allow all cables to protrude approx. 1200 mm from the wall.

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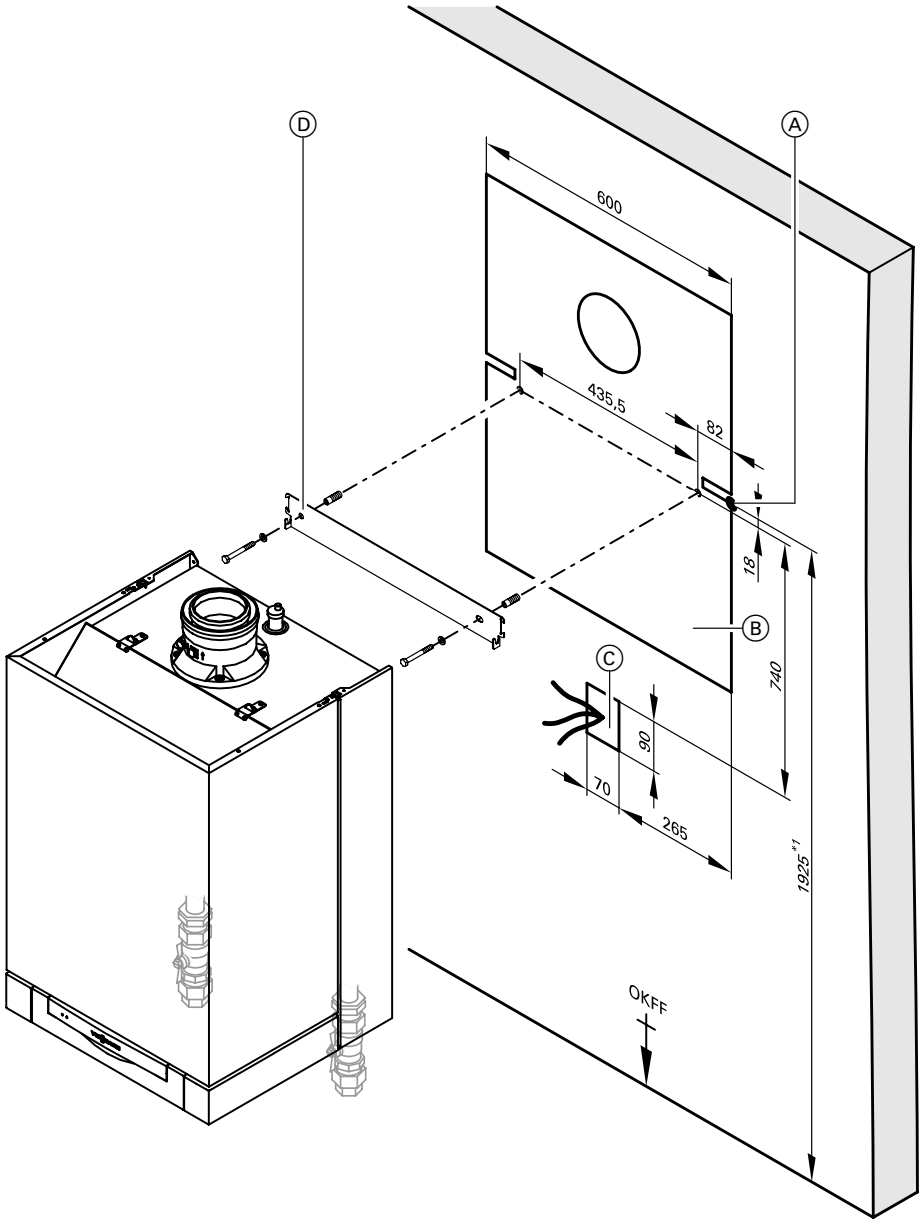
Pre-installation in unfinished buildings for Vitodens 300 (from 49 kW) installation directly to the wall

An installation template is supplied with Vitodens 300 for the location of fixing holes for the wall mounting frame and the location of the flue pipe on the wall.

Make the connection to the heating circuits on site (maintenance valves and connection fittings available as accessories).
Suitable shut-off valves and the gas valve can be ordered separately (see price list).

Note
Ensure a clearance of 700 mm in front of Vitodens 300 for maintenance purposes. Maintenance spaces to the l.h. or r.h. side of Vitodens 300 are **not** required.



Ⓐ Reference point Vitoplus 300 top edge
Ⓑ Installation template Vitodens 300
Ⓒ Area for electrical supply cables
Allow all cables to protrude approx. 1200 mm from the wall.
Ⓓ Wall mounting frame

*1 *Recommendation.*

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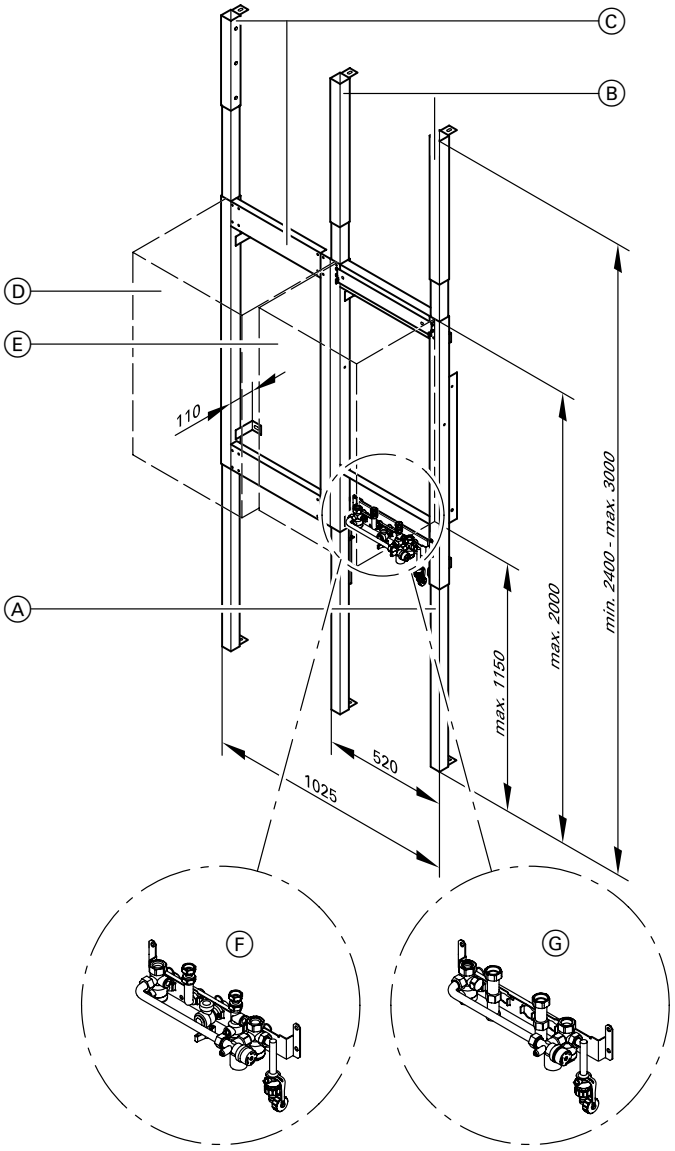
Installation on a wall mounting frame



Self-supporting mounting frame for Vitodens 300 to 35.0 kW
for Vitodens and wall mounted DHW cylinder (80 litres capacity).
Suitable for wall mounting, for self-supporting installation or for covering with various materials.
Incl. valves and gas angle valve G ¾" with thermal safety shut-off valve.
- for gas fired combination boiler with compression fittings
- for gas fired boiler with compression fittings

Ⓐ Self-supporting mounting frame for Vitodens incl. mounting bracket
Ⓑ Ceiling mounting extension (Vitodens)
Ⓒ Self-supporting mounting frame for wall mounted DHW cylinders incl. ceiling fixing extension
Ⓓ Wall mounted DHW cylinder (80 litres capacity)
Ⓔ Vitodens
Ⓕ Mounting bracket for gas fired combination boiler
Ⓖ Mounting bracket for gas fired boiler

Information regarding Vitodens 300 from 49.0 kW
Vitodens 300 with 49.0 and 66.0 kW can also be fitted to the self-supporting mounting frame.
The boiler stands 20 mm proud on both sides of the self-supporting mounting frame.
The mounting bracket cannot be used, and the DHW cylinders to be hung alongside the boiler are unsuitable for Vitodens 300 with 49.0 and 66.0 kW.

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Electrical connection

Observe the requirements of your local electricity supply company and VDE (or local) regulations when making the mains power connection.
The mains power cable must be protected by a fuse with a maximum rating of 16 A.
Connect the mains (230 V~, 50 Hz) via a permanent connection.
Connect the supply cables and accessories at the terminals inside the boiler.

Mains electrical connection of accessories
The accessory mains supply can be connected directly to the control unit. This connection is controlled with the system ON/OFF switch (max. 4 A).
Where the boiler is installed in a wet area, the mains connection of accessories must not be carried out at the control unit.

Let cables inside the marked area (see fig.) protrude 1200 mm from the wall.

Use the following cables:
NYM-J 3 × 1.5 mm^2 for mains power cables.

NYM with the required number of conductors for the external connections.

2-core cables for
- External extension H1 or H2
- Outside temperature sensor
- Vitotronic 050 (LON)
- Extension kit for heating circuit with mixer (KM BUS)
- Central fault message (in conjunction with internal extension)
- Vitotrol 100, type UTD
- Vitotrol 200
- Vitotrol 300.

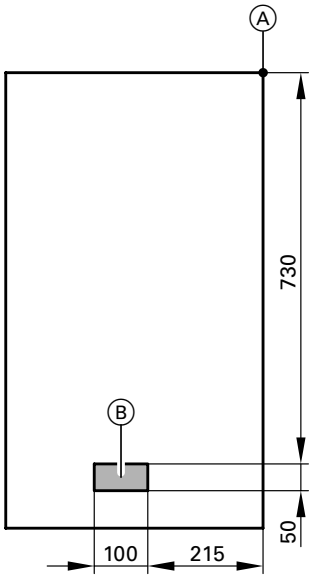
3-core cable for
- Vitotrol 100, type UTA
- DHW circulation pump
- Mains connection accessories.

Interlock switch

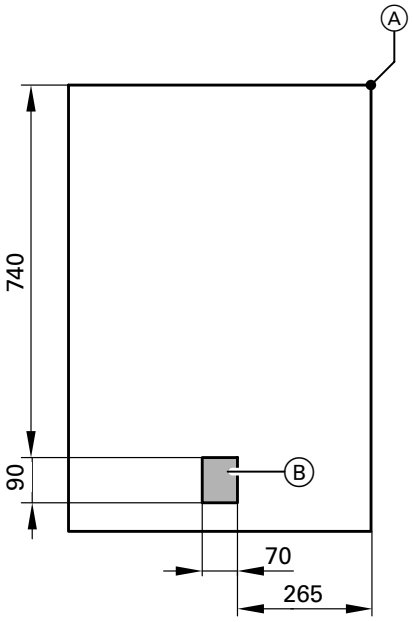
Install an interlock for open flue operation if an extraction device (e.g. cooker hood) is fitted in the room providing the boiler ventilation.

For this, the internal extension H2 (accessory) can be used. This switches the extract fans OFF via the adaptor when the burner is started.

Vitodens 300, 6.6 to 35.0 kW



Vitodens 300, from 49.0 kW



Ⓐ Reference point Vitodens top edge
Ⓑ Area for electrical supply cables

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Vitodens 300 (6.6 to 35 kW) as replacement for third party boilers

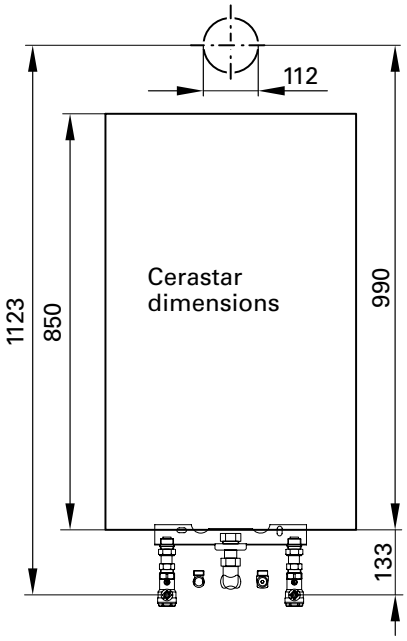
Using an adaptor, Vitodens may be connected to the water connections of Cerastar-ZR-/ZWR and Thermoblock-VC/-VCW.

For modernisation, adaptors with primary and secondary water connections and fixing parts are offered as accessories for replacing the following third party boilers with Vitodens (see price list).
Replacing these devices with Vitodens will not lead to a higher installation effort than for the original equipment.

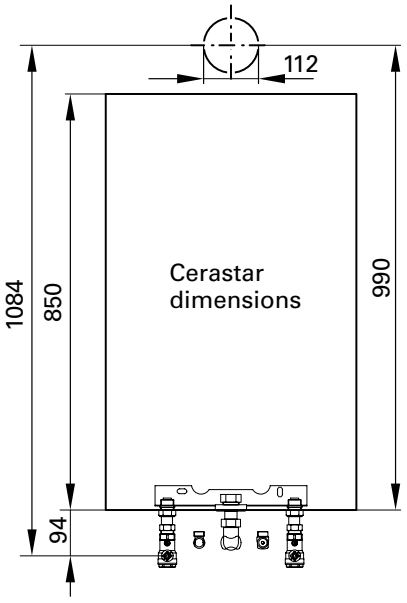
Generally, where a gas fired wall mounted boiler is replaced by a Vitodens 300 gas fired condensing boiler, the flue pipe must also be replaced with a system which is suitable for condensing operation (see price list for flue gas systems for Vitodens).
Match up the flue gas connections on site.

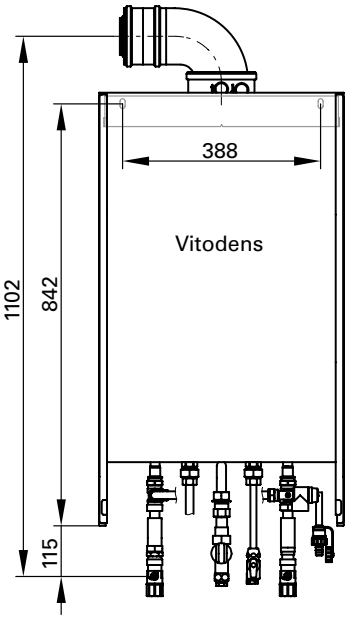
Replacing Cerastar-ZR/-ZWR

Open flue operation



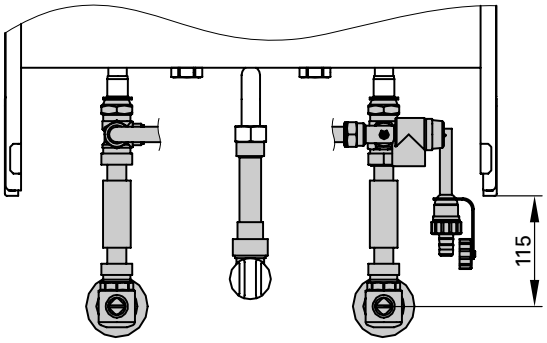
Balanced flue operation



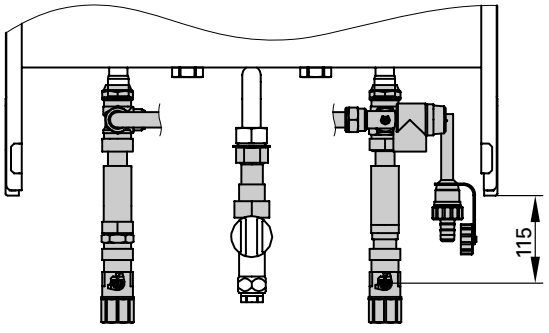


Existing water connections have identical dimensions.

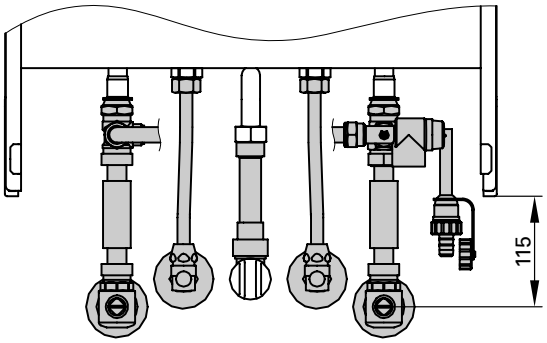
Installation on unfinished walls
Gas fired boiler



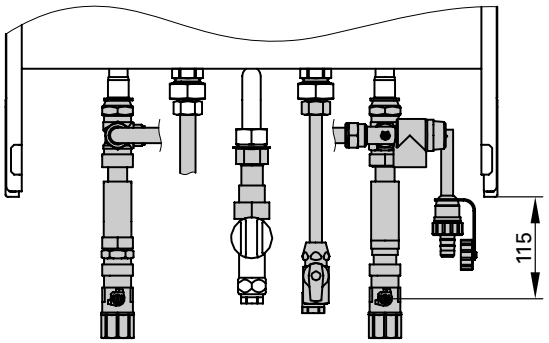
Installation on finished walls
Gas fired boiler



Gas fired combination boiler



Gas fired combination boiler



Standard delivery (incl. mounting rail)

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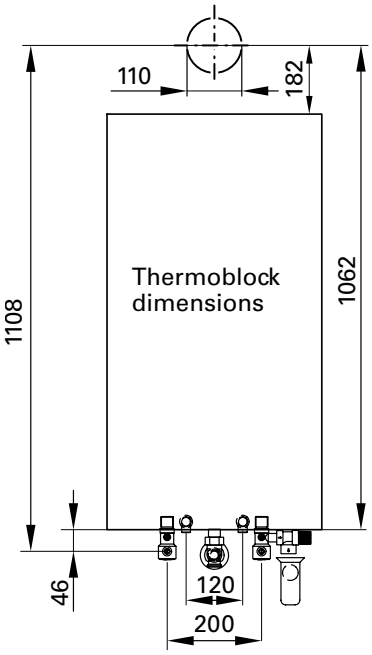
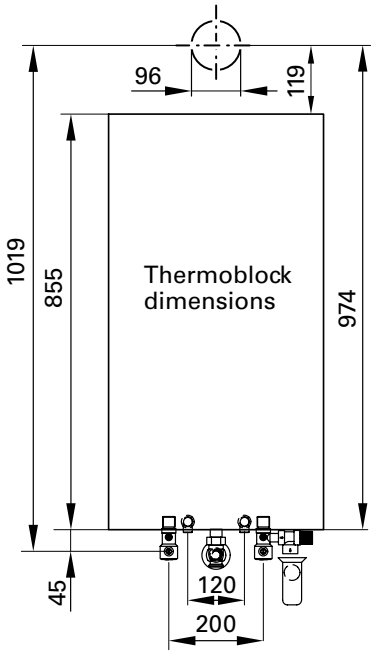
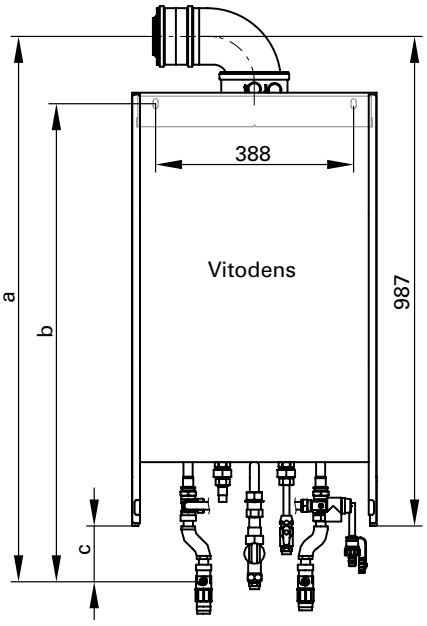
Replacing Thermoblock-VC/-VCW

Open flue operation



Balanced flue operation

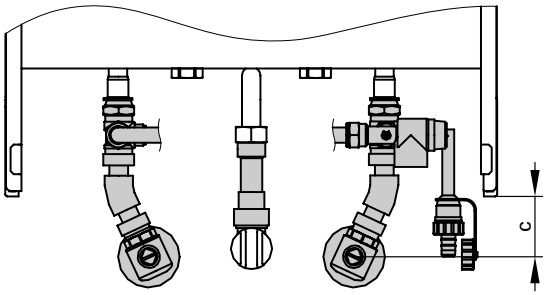




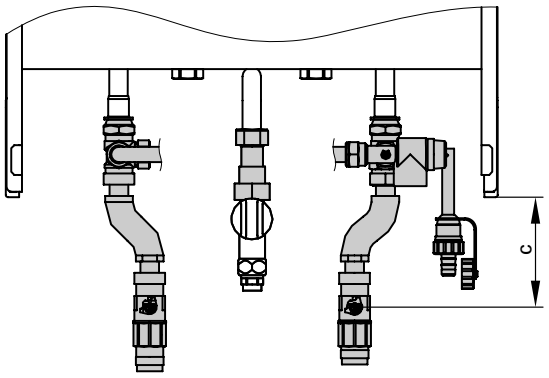
Existing water connections have identical dimensions.

Dimension	Installation on unfinished walls	Installation on finished walls
a mm	1053	1092
b mm	908	947
c mm	66	105

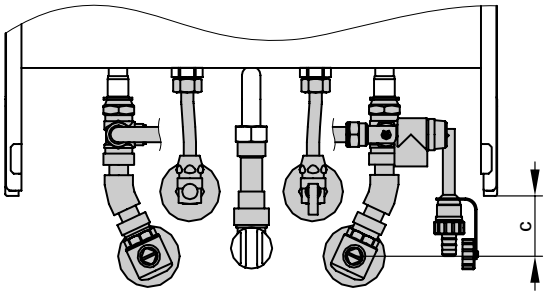
Installation on unfinished walls
Gas fired boiler



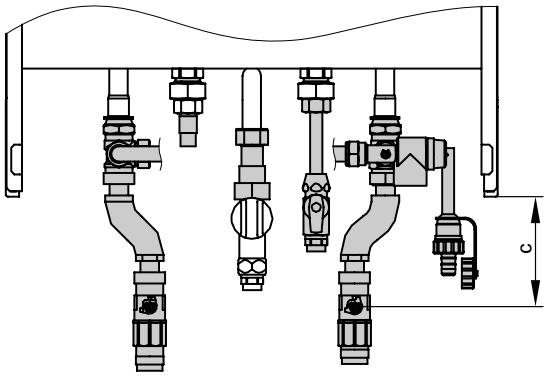
Installation on finished walls
Gas fired boiler



Gas fired combination boiler



Gas fired combination boiler



5822 304 GB

Standard delivery (incl. mounting rail)

Vitotronic 100, type HC1, for constant temperature operation

Integrated in Vitodens
- Electronic boiler control unit for operating Vitodens at a constant boiler water temperature
- A Vitotrol 100, type UTA or UTD is required for room temperature-dependent operation (according to EnEV [Germany])
- Integrated diagnostic system
- Integral cylinder thermostat

Structure and functions

Construction

The control unit comprises a basic unit, electronic modules and a programming unit.
The control unit contains the following: System ON/OFF switch, digital display, control thermostat, temperature limiter, keys for
- Operating mode
- Boiler water and DHW temperature
- Emissions test function,

burner fault indication, burner fault reset, integral diagnostic system and fuses.

Control characteristics
PI characteristics with modulating output.

Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Rated current:	6 A
Safety class:	I
Protection:	IP X4D to EN 60529, safeguard through design/installation
Function:	Type 1B to EN 60730-1
Permissible ambient temperature	
■ during operation:	0 to +40 °C Use in living space and boiler rooms (standard ambient conditions)
■ in storage and transport:	–20 to +65 °C
Electronic control thermostat setting:	74 °C (change not possible)
Electronic temp. limiter setting (heating mode):	81 °C (change not possible)
Temperature limiter setting:	100 °C (change not possible)
DHW temperature setting range	
■ Gas fired combi boiler:	10 to 57 °C
■ Gas fired boiler:	10 to 60 °C

Summer mode
Heating program

The burner starts only when the cylinder needs reloading or when DHW is drawn from a combi boiler.

Boiler temperature sensor

The boiler temperature sensor is connected to the control unit and built into the boiler.

Permiss. ambient temperature	
■ in operation:	0 to +130 °C
■ in storage and transport:	–20 to + 70 °C

Frost protection

The frost protection function is active in all heating programs.
The burner is switched ON when the boiler water temperature reaches 5 °C and will be switched OFF again, when the boiler water temperature reaches 15 °C.
The circulation pump will be switched ON simultaneously with the burner and switched OFF after a delay.
To protect the system from frost, the circulation pump may be started at certain intervals (up to 24 times per day) for periods of approx. 10 minutes.

Cylinder temperature sensor

Standard delivery for
- Connection set for wall mounted DHW cylinders (80 litres) (order separately)
- Connection set for DHW cylinders installed below the boiler (120 or 150 litres) (order separately)
- Connection set for DHW cylinders installed adjacent to the boiler (160, 200 or 300 litres) or alternative DHW cylinders (order separately)
- Order the cylinder temperature sensor for Vitodens 300 from 49 kW separately (see page 21).

Cable length approx. 3.75 m, wired ready to plug in

Protection:	IP 32
Permiss. ambient temperature	
■ in operation:	0 to +90 °C
■ in storage and transport:	–20 to +70 °C

Programming unit

- Display
- Display of temperatures and faults
- Coding display

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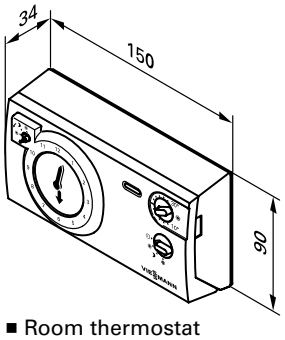
Vitotronic 100 accessories

Vitotrol 100 (type UTA),
part no. 7170 149

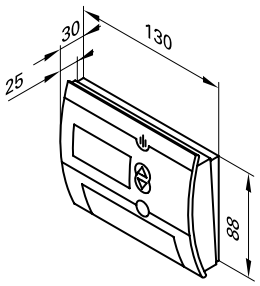


- Room thermostat
- with switching output (two-point output)
- with adjustable day program
- Standard switching times are factory-set (individually programmable).
- shortest switching gap 15 minutes

Install Vitotrol 100 in the main living room on an internal wall opposite radiators, but not inside shelf units, niches, immediately by a door or a heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Control unit connection:
3-core cable with a cross-section of 1.5 mm^2 (without green-yellow conductor)

Rated voltage:	230 V~/50 Hz
Rated breaking capacity of the contact:	6(1) A 250 V~
Protection:	IP 20
Permissible ambient temperature	
■ during operation:	0 to +40 °C
■ in storage and transport:	–20 to +65 °C
Setting range for set values for standard and reduced mode:	10 to 30 °C
Set room temperature in standby mode:	6 °C

Vitotrol 100 (type UTD),
part no. 7179 059



- Room thermostat
- With switching output (two-point output)
- With digital time switch
- With rotary selector for adjusting
  - Permanent comfort
  - Permanent setback
  - Frost
  - 2 permanently set programs
  - One individually adjustable program and
  - Holiday program
- With keys for party and economy mode

Install Vitotrol 100 in the main living room on an internal wall opposite radiators, but not inside shelf units, niches, immediately by a door or a heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Operation without mains power supply (two 1.5 V round alkaline cells, type LR6 (AA), which run for approx. 1.5 years).
Control unit connection:
2-core with a cross-section of 0.75 mm^2.

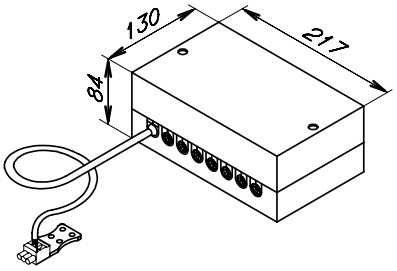
Rated voltage:	3 V–
Rated breaking capacity of the zero volt contact	
■ max.:	6(1) A 230 V~
■ min.:	1 mA 5 V–
Protection:	IP 20 to EN 60529, safeguard through design/installation
Effect:	RS type 1B according to EN 60730-1
Permissible ambient temperature	
■ in use:	0 to +50 °C
■ during storage and transport:	–10 to +60 °C
Setting range for	
■ Comfort temperature:	10 to 30 °C
■ Setback temperature:	10 to 30 °C
■ Frost protection temperature:	6 to 10 °C
Power backup during battery replacement:	10 minutes

Cylinder temperature sensor
for Vitodens 300 from 49 kW,
part no. 7179 114

Cable length approx. 3.75 m, wired ready to plug in

Protection:	IP 32
Permiss. ambient temperature	
■ in operation:	0 to +90 °C
■ in storage and transport:	–20 to +70 °C

KM BUS distributor,
part no. 7415 028



Including a 3.0 m long cable and LV plug-in connector.
For the connection of 2 to 9 devices to the Vitotronic KM BUS (e.g. Vitotrol, control module V, etc.).
We recommend the use of the KM BUS distributor if two or more devices are used which are identified as KM BUS users.

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Internal extension H1,
part no. 7179 057
Electronic PCB for installation into the control unit.
Using the extension enables the following functions to be achieved:

Function	Rated breaking capacity of the relay output
■ Connection of an external safety solenoid valve (LPG)	1(0.5) A 250 V~
as well as, alternatively, **one** of the following functions: ■ Connection of a heating circuit pump (stepped) for a directly connected heating circuit ■ Connection of a central fault messaging facility ■ Connection of a cylinder loading pump	2(1) A 250 V~

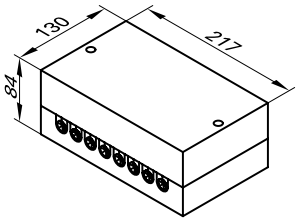
Rated voltage: 230 V~ Rated frequency: 50 Hz

Internal extension H2,
part no. 7179 144
Electronic PCB for installation into the control unit.
Using the extension enables the following functions to be achieved:

Function	Rated breaking capacity of the relay output
■ Interlocking of external exhaust fans	6(3) A 250 V~
as well as, alternatively, **one** of the following functions: ■ Connection of a heating circuit pump (stepped) for a directly connected heating circuit ■ Connection of a central fault messaging facility ■ Connection of a cylinder loading pump	2(1) A 250 V~

Rated voltage: 230 V~ Rated frequency: 50 Hz

External extension H1,
Part no. 7179 058
Function extension inside the equipment for wall mounting.
Using the extension enables the following functions (up to 8) to be achieved:

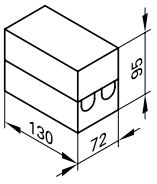


Function	Rated breaking capacity of the relay output
■ Connection of a central fault messaging facility	0.4(0.2) A 250 V~
■ Connection of a heating circuit pump (stepped) for a directly connected heating circuit ■ Connection of a cylinder loading pump	2(1) A 250 V~ in total max. 4 A~
■ Minimum boiler water temperature demand ■ External operating mode changeover ■ External blocking ■ Set boiler water temperature default via an 0 – 10 V input	

Rated voltage: 230 V~
Rated frequency: 50 Hz
Rated current: 4 A
Power consumption: 4 W
Safety class: I
Protection: IP 32

Permissible ambient temperature
■ during operation: 0 to +40 °C
Use in living space and boiler rooms (standard ambient conditions)
■ in storage and transport: –20 to +65 °C

External extension H2,
part no. 7179 265
Function extension inside the equipment for wall mounting.
Using the extension enables the following functions to be achieved:
■ Minimum boiler water temperature demand
■ External operating mode changeover
■ External blocking



Rated voltage: 230 V~
Rated frequency: 50 Hz
Rated current: 2 A
Power consumption: 3 W
Safety class: I
Protection: IP 32

Permissible ambient temperature
■ during operation: 0 to +40 °C
Use in living space and boiler rooms (standard ambient conditions)
■ in storage and transport: –20 to +65 °C

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Vitotronic 200, type HO1, for weather-compensated mode

Integrated in Vitodens
- Weather-compensated, digital boiler circuit control for Vitodens in modulating operating mode
- With programming unit
- Digital time switch for day and week programming with four programmable intervals each per day for reduced mode and enabling DHW loading
- Heating system frost protection
- Integrated diagnostic system
- Integral cylinder thermostat
- Screed drying program
- External starting and blocking (option with accessories)

Structure and functions

Modular construction

The control unit comprises a basic unit, electronic modules and a programming unit.
The control unit contains the following: System ON/OFF switch, electronic max. temperature limiter, temperature controller, Optolink laptop interface, keys for
- Program selection
- Holiday program
- Party and economy mode
- Temperature at reduced mode
- Domestic hot water temperature
- Emissions test function

and a rotary selector for temperature selection in standard mode.
Demand-dependent heating circuit pump and burner shutdown, adjustment of a variable heating limit, anti-seizing pump protection, integral diagnostic system, maintenance display and screed function.

Functions

Vitotronic regulates the boiler water temperature in modulating mode.
The control unit regulates the boiler water temperature (= flow temperature of the directly connected heating circuit) and the flow temperature of one heating circuit with mixer (in conjunction with the extension kit for one heating circuit with mixer) subject to outside temperature.
It offers cylinder temperature regulation with priority control (heating circuit pumps OFF, mixer closed).
An additional DHW heating function (short-term heating to a higher temperature) is an option.

Control characteristics

PI characteristics with modulating output.

Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Rated current:	6 A
Safety class:	I
Protection:	IP X 4 D to EN 60529
Permissible ambient temperature	
■ during operation:	0 to +40 °C use in living space and boiler rooms (standard ambient conditions)
■ during storage and transport:	–20 to +65 °C
Electronic control thermostat setting:	74 °C (change not possible)
Electronic temp. limiter setting (heating mode):	81 °C (change not possible)
Temperature limiter setting:	100 °C (change not possible)
DHW temperature setting range	
■ Gas fired combi boiler:	10 to 57 °C
■ Gas fired boiler:	10 to 60 °C
Heating curve setting range	
■ Slope:	0.2 to 3.5
■ Level:	–13 to 40 K

Programming unit

- With digital time switch
- Illuminated display with plain text support
- Display of temperatures and faults
- Coding display
- All settings and the most important codes in plain text

Frost protection

The frost protection function is active in all heating programs.
Frost protection will be
- started, when the outside temperature falls below approx. +1 °C.
  During frost protection, the boiler circuit pump will be switched ON, and the boiler water is maintained at a lower temperature of approx. 15 °C.
- stopped, if the outside temperature exceeds approx. +3 °C.

Summer mode

Heating program

The burner starts only when the cylinder needs reloading or when DHW is drawn from a combi boiler.

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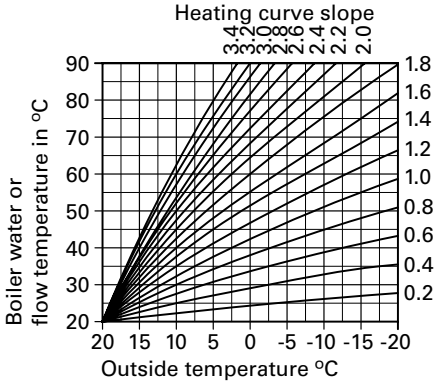
Heating curve adjustment (slope and level)

The control unit controls the boiler water temperature (= flow temperature of the heating circuit without mixer) **and** the flow temperature of the heating circuit with mixer (in conjunction with the extension kit for one heating circuit with mixer) subject to outside temperature. The flow temperature required to reach a certain room temperature depends on the heating system and the thermal insulation of the building to be heated. Adjusting both heating curves matches the boiler water temperature and the flow temperature to these operating conditions.

Heating curves:



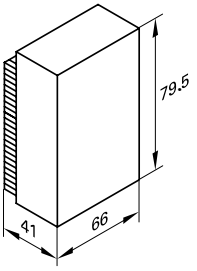
The upper boiler temperature is limited by the temperature limiter and the temperature set on the electronic maximum temperature limiter.
The flow temperature cannot exceed the boiler water temperature.

Boiler temperature sensor

The boiler temperature sensor is connected to the control unit for weather-compensated mode, and is an integral part of the boiler.
Permiss. ambient temperature
- in operation: 0 to +130 °C
- in storage and transport: –20 to + 70 °C

Note
When using a hydraulic de-coupler (low loss header), connect a temperature sensor for use in the low loss header (see Vitodens Technical Guide).

Outside temperature sensor



Installation location:
- North or north-westerly wall of the building
- 2 to 2.5 m above the ground; for multi-storey buildings at approx. the upper half of the second floor.

Connection:
- 2-wire cable, length max. 35 m when using a cross-section of 1.5 mm^2 (copper).
- Do not run the cable immediately next to 230/400 V cables.

Protection: IP 43 to EN 60 529
Permissible ambient temperature for operation, storage and transport: –40 to +70 °C

Cylinder temperature sensor

Standard delivery for
- Connection set for wall mounted DHW cylinders (80 litres) (order separately)
- Connection set for DHW cylinders installed below the boiler (120 or 150 litres) (order separately)
- Connection set for DHW cylinders installed adjacent to the boiler (160, 200 or 300 litres) or other DHW cylinders (order separately)
- Order the cylinder temperature sensor for Vitodens 300 from 49 kW separately (see page 32).

Cable length approx. 3.75 m, wired ready to plug in
Protection: IP 32
Permissible ambient temperature
- during operation: 0 to +90 °C
- in storage and transport: –20 to +70 °C

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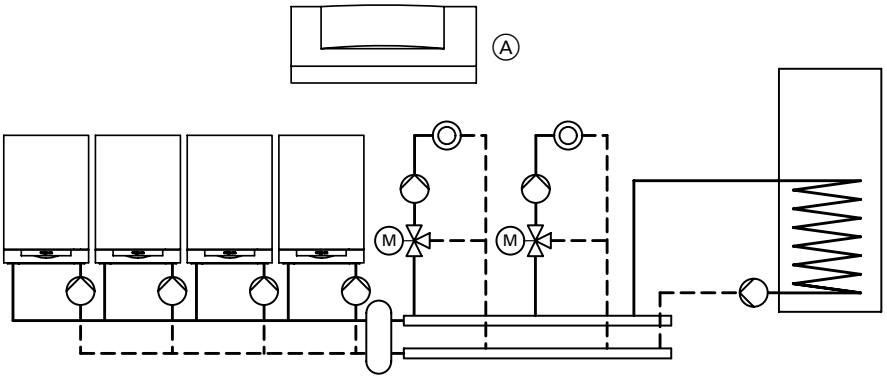
Cascade control unit Vitotronic 333, type MW2

Economical and safe heating system operation through Vitotronic digital control system with communication capability. Tailored to every need, covering all known control strategies and applications.

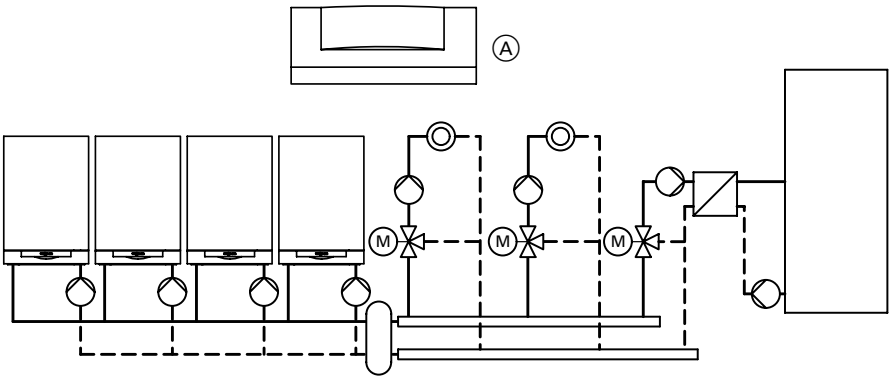
Benefits at a glance

- Uniform, simple operation:
  - Various operating levels for system users and heating contractors
  - Easy to read through display with plain text and illumination
  - Illuminated heating program selection and heating circuit keys
  - Simple adjustment of switching times
  - Digital time switch for day and week programs. Through changing a heating program, the set times for DHW heating and DHW circulation pump operation can be matched to individual requirements
  - Plug & Work function for automatic recognition and adaptation of sensors and system accessories
  - Automatic summer/winter changeover.
- Program selection for screed drying support.
- Quick installation time, commissioning and maintenance, due to the Rast-5 plug-in system, modular plug-in function modules, good accessibility and integral diagnostic system.
- Optolink laptop interface for interrogation and parameter setting with a laptop.
- Standardised LON BUS for complete integration into building management systems.
- Remote monitoring in conjunction with Vitocom 300.
- For all common water connections and systems.
- Special control strategy for Vitodens 300 gas fired condensing boiler.

Multi-boiler system with DHW cylinder



Multi-boiler system with cylinder loading system

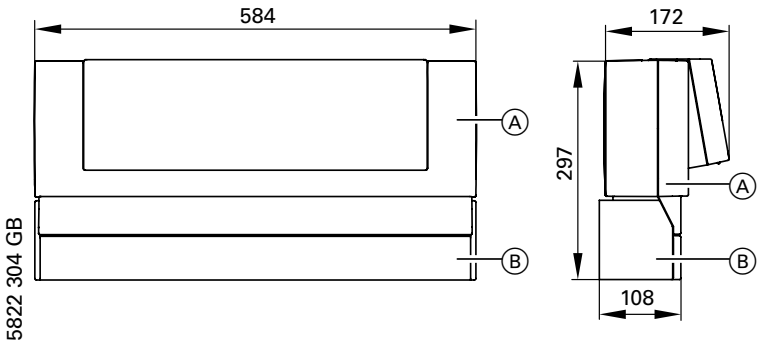


Ⓐ Vitotronic 333

Weather-compensated, digital cascade and heating circuit control
- for multi-boiler systems with up to four Vitodens 300
- with sequential boiler strategy
- for one system circuit and a max. of two heating circuits with mixer. Up to a further 32 Vitotronic 050 heating circuit controllers can be connected via LON BUS (LON module required [accessory])
- for modulating operation in conjunction with Vitotronic 100, type HC1
- with cylinder temperature control or control unit for a cylinder loading system with mixer assembly
- with capability to communicate via LON BUS (LON communication module and terminators are available as accessory)
- with integral diagnostic system.

Note
For higher antiference, connect all boilers with Vitotronic 100 and the Vitotronic 333 cascade control unit to the same phase.

Dimensions



Ⓐ Vitotronic 333
Ⓑ Mounting bracket

As delivered condition

Vitotronic 333, type MW2
(part no. 7179 063)
with
- Programming unit with plain text support and illuminated display
- Outside temperature sensor
- Flow temperature sensor
- Cylinder temperature sensor
- Cascade communication module
- Mounting bracket

Fit the control unit with a wall mounting bracket to the wall.

An extension kit is required for each heating circuit with mixer (accessory).
Only install three-way mixers into heating circuits for condensing boilers because of their low return temperatures.

The LON communication module and BUS terminators are available as accessories to enable communication.

For systems with DHW cylinder
- circulation pump with check valve for cylinder temperature control
  or
- cylinder loading system Vitotrans 222 with mixer assembly

must be ordered separately.

Heating system with underfloor heating
In an underfloor heating circuit, an extension kit is required for one heating circuit with mixer.
Install a temperature limiter into the flow of the underfloor heating circuit to limit the maximum temperature.
Observe DIN 18560-2.
A remote control with room temperature hook-up must not affect the underfloor heating circuit.

Plastic pipe systems for radiators
We recommend the installation of a high limit thermostat to limit the maximum temperature for plastic pipework for heating circuits with radiators.

Construction and function

Modular construction

The control unit comprises a basic unit, electronic modules and a programming unit with plain text support.
The control unit contains the following:
System ON/OFF switch, electronic maximum temperature limiter, minimum temperature regulator, emissions test switch, Optolink laptop interface, keys for
- Program selection
- Holiday program
- Party and economy mode
- Temperature at reduced mode
- Domestic hot water temperature
- Date/time
- Setting the heating curves for system/flow temperature
- Heating circuit selection

and a rotary selector for temperature selection in standard mode.
Demand-dependent heating circuit pump shutdown, adjustment of the variable heating limit, anti-seizing pump protection, central fault message and integral diagnostic system.

Functions

Vitotronic 333 regulates the system/flow temperature of a multi-boiler system with up to four Vitodens 300 with Vitotronic 100, type HC1, in modulating mode.
It regulates the system/boiler water temperature and the flow temperature of the heating circuits with mixer subject to weather conditions.
It controls the Vitotronic 100, type HC1, of the boilers, in accordance with boiler sequence strategy.
It provides adaptive cylinder temperature control with priority.
An additional DHW heating function (heating to a higher temperature) is an available option.
A cylinder loading system with a regulated three-way valve can be controlled.

Optional screed drying function for underfloor heating systems.

According to the Energy Savings Order [Germany], the temperature in each room must be individually controlled, e.g. through thermostatic radiator valves.

Control characteristics

- PI characteristics with three-point output
- Heating curve setting range

Slope:	0.2 to 3.5
Level:	–13 to 40 K
Max. limit:	20 to 130 °C
Min. limit:	1 to 127 °C
Differential temp. for heating circuits with mixer:	0 to 40 K

- DHW temperature setting range: 10 to 60 °C; adjustable from 10 to 95 °C (potential temperature limited by the max. boiler flow temperature)

Specification

Rated voltage:	230 V~
Rated frequency:	50 Hz
Rated current:	6 A
Power consumption:	10 W
Safety class:	I
Protection:	IP 20 D to EN 60 529, safeguard through design/installation
Function:	Type 1B to EN 60 730-1
Permissible ambient temperature	
■ during operation:	0 to +40 °C Installation in living accommodation (standard ambient conditions)
■ during storage and transport:	–20 to +65 °C
Rated breaking capacity of the relay outputs for	
■ Heating circuit pumps or heat exchanger set [20]:	4(2) A 230 V~*1
■ Cylinder loading pump [21]:	4(2) A 230 V~*1
■ DHW circulation pump [28]:	4(2) A 230 V~*1
■ Central fault message [50]:	4(2) A 230 V~*1
■ Three-way valve cylinder loading system or mixer motor [52]:	0.2(0.1) A 230 V~*1

*1 *Total max. 6 A 230 V~.*

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Connection box

External devices are connected via system plug.
The plug-in connectors are plugged directly into the front of the open control unit.
Connect three-phase consumers via additional contactors.

Programming unit

- Identical user interface as for Vitotronic boiler control units
- With digital time switch
- Illuminated display with plain text support
- Display of temperatures and faults
- Encoding via the programming unit display
- All settings and the most important codes in plain text

Programming unit time switch

Digital time switch with day and week program, annual calendar, automatic summer/winter changeover and automatic function for DHW heating and DHW circulation pump.
Time, day and standard switching times for central heating, DHW heating and DHW circulation pump are factory-set (individually programmable); max. four switching periods per day may be selected.
Shortest switching interval: 10 minutes
Power reserve: 5 years

Setting heating programs

The heating system frost protection*1 applies to all heating programs.
You can set the following heating programs with the program selection keys:
- Heating and DHW
- DHW only
- Standby mode

As option, external heating program changeover common for all heating circuits or for selected heating circuits.

*1 *see frost protection.*

Frost protection function of the mixer heating circuits

Frost protection will be
- started, when the outside temperature falls below approx. +1 °C, i.e. the heating circuit pumps are started and the flow is maintained at a lower temperature of approx. 10 °C.
- stopped, if the outside temperature exceeds approx. +3 °C. i.e. the heating circuit pumps are switched OFF.

Summer mode
(DHW only, heating program selection key)

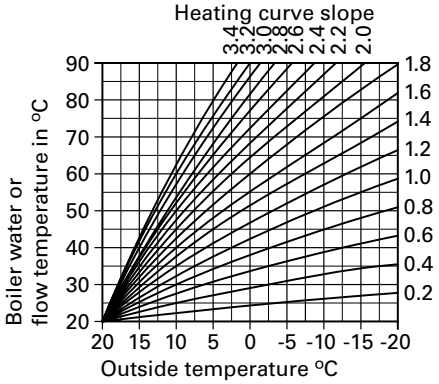
One or several burner(s) start(s) only when the DHW cylinder needs reloading (controlled by the cylinder thermostat). The lower boiler water temperature required for the respective boiler is maintained.

Heating curve adjustment (slope and level)

Subject to heating system, Vitotronic regulates
- the flow temperature of a maximum of two heating circuits with mixer subject to weather conditions, and
- the system/flow temperature automatically, i.e. from 0 to 40 K (as delivered condition 8 K) higher than the respectively highest current set flow temperature.

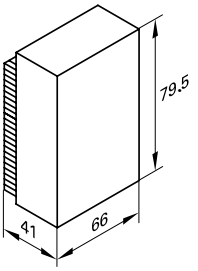
The flow temperature required to reach a certain room temperature depends on the heating system and the thermal insulation of the building to be heated. Adjusting the heating curves matches the system or flow temperatures to these conditions.

Heating curves:



The upper flow temperature is limited by control thermostat and the electronically set maximum temperature of the boiler control unit Vitotronic 100, type HC1.

Outside temperature sensor



Installation location:
- North or north-westerly wall of the building
- 2 to 2.5 m above the ground; for multi-storey buildings at approx. the upper half of the second floor.

Connection:
- 2-wire cable, length max. 35 m when using a cross-section of 1.5 mm^2 (copper).
- Do not run this lead immediately next to 230/400 V cables.

Protection: IP 43 to EN 60 529, safeguard through design and installation
Permissible ambient temperature for operation, storage and transport: –40 to +70 °C

Immersion temperature sensor

To measure the common flow temperature of the multi-boiler system
Secured with a tie.
Cable length 3.75 m, ready to plug in.
Protection: IP 32 to EN 60 529. Safeguard through design/ installation.
Permissible ambient temperature
- in operation: 0 to +90 °C
- during storage and transport: –20 to +70 °C

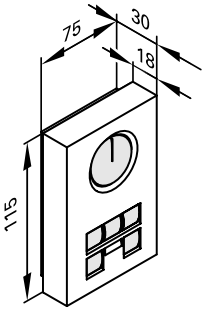
Vitotronic 200 and Vitotronic 333 accessories

Note on room temperature hook-up (RS function) for remote control

Because of the inertia of underfloor heating systems, the RS function must not affect an underfloor heating circuit. For boilers with a lower temperature limit, the RS function must not affect the heating circuit without mixer.

Note on Vitotrol 200 and 300
If required, Vitotrol 200 and Vitotrol 300 can also be used together in one heating system (one for each heating circuit).

Vitotrol 200 (KM BUS user), part no. 7450 017



The Vitotrol 200 remote control adjusts the heating program and the required set room temperature for one heating circuit in standard mode, from any room in the house.
Vitotrol 200 is equipped with illuminated heating program selection keys and a party or economy key.
The fault display shows faults on the control unit.
A remote control unit can be connected for each heating circuit.

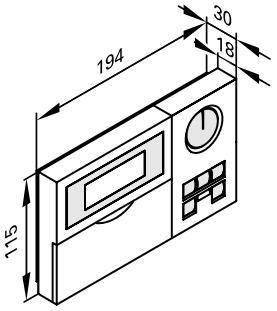
WS function: Installation at any point in the building.
RS function: Install the remote control unit in the main living room on an internal wall opposite radiators, but not inside shelf units, niches, immediately by a door or a heat source (e.g. direct sunlight, fireplace, TV set, etc.).
The integral room temperature sensor records the actual room temperature and effects any necessary correction of the flow temperature as well as a rapid heat-up at the start of the heating operation (if suitably encoded).
Connection:
- 2-core lead, maximum cable length 50 m (even if connecting several remote control units).
- Never route this lead immediately next to 230/400 V cables.
- A LV connector is part of the standard delivery

Power supply via KM BUS.

Rated current:	10 mA
Power consumption:	0.2 W
Safety class:	III
Protection:	IP 30 to EN 60 529. Safeguard through design/ installation.
Permissible ambient temperature	
■ in operation:	0 to +40 °C
■ during storage and transport:	–20 to +65 °C
Room temperature setting range:	10 to 30 °C, adjustable from 3 to 23 °C or 17 to 37 °C

The set room temperature for reduced mode is adjusted on the control unit.

Vitotrol 300 (KM BUS user), part no. 7179 060



The Vitotrol 300 remote control adjusts the required set room temperature for one heating circuit in standard and reduced mode, the heating program and the switching times for central heating, DHW heating and the DHW circulation pump.
Vitotrol 300 provides an illuminated display as well as illuminated heating program selection keys, a party or economy key, automatic summer/winter changeover, keys for holiday program, weekday and time.
A remote control unit can be connected for each heating circuit.

WS function: Installation at any point in the building.
RS function: Install the remote control unit in the main living room on an internal wall opposite radiators, but not inside shelf units, niches, immediately by a door or a heat source (e.g. direct sunlight, fireplace, TV set, etc.).
The integral room temperature sensor records the actual room temperature and effects any necessary correction of the flow temperature as well as a rapid heat-up at the start of the heating operation (if suitably encoded).
Connection:
- 2-core lead, maximum cable length 50 m (even if connecting several remote control units).
- Never route this lead immediately next to 230/400 V cables.
- A LV connector is part of the standard delivery

Power supply via KM BUS.

Rated current:	10 mA
Power consumption:	0.5 W
Safety class:	III
Protection:	IP 30 to EN 60 529. Safeguard through design/ installation.
Permissible ambient temperature	
■ in operation:	0 to +40 °C
■ during storage and transport:	–20 to +65 °C
Set room temperature setting range	
■ in standard mode:	10 to 30 °C, adjustable from 3 to 23 °C or 17 to 37 °C
■ in reduced mode:	3 to 37 °C

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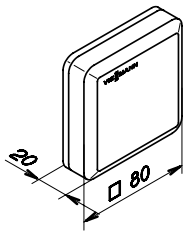
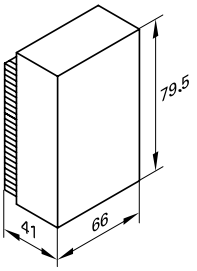
Room temperature sensor,
part no. 7408 012



Separate room temperature sensor as supplement to Vitotrol 200 or 300; to be used if Vitotrol 200 or 300 cannot be installed inside the main living room or in a suitable position where the unit can be installed to record or adjust the temperature.
Install the room temperature sensor in the main living room on an internal wall opposite radiators, but not inside shelf units, niches, immediately by a door or a heat source (e.g. direct sunlight, fireplace, TV set, etc.).
Connect the room temperature sensor to Vitotrol 200 or 300.
Connection:
- 2-core cable with a cross-section of 1.5 mm^2.
- Cable length from the remote control 30 m.
- Never route this lead immediately next to 230/400 V cables.

Safety class:	III
Protection:	IP 30 to EN 60529, safeguard through design/ installation
Permissible ambient temperature	
■ in operation:	0 to +40 °C
■ in storage and transport:	–20 to +65 °C

Radio clock receiver,
part no. 7450 563



For receiving the DCF 77 time signal (location: Mainflingen near Frankfurt/Main [Germany]).
Radio controlled setting of time and date.
Install the radio clock receiver on an outside wall in the direction of the transmitter. The reception may be reduced by metallic elements in the building structure, e.g. steel reinforced concrete, neighbouring buildings and sources of electro-magnetic interference, e.g. HV and public transport lines.
Connection:
- 2-core lead with a max. length of 35 m when using a cross-section of 1.5 mm^2 copper.
- Never route this lead immediately next to 230/400 V cables.

Internal extension H1,
part no. 7179 057
Electronic PCB for installation into the control unit.
Using the extension enables the following functions to be achieved:

Function	Rated breaking capacity of the relay output
■ Connection of an external safety solenoid valve (LPG)	1(0.5) A 250 V~
as well as, alternatively, **one** of the following functions: ■ Connection of a DHW circulation pump ■ Connection of a heating circuit pump (stepped) for a directly connected heating circuit ■ Connection of a central fault messaging facility ■ Connection of a cylinder loading pump	2(1) A 250 V~

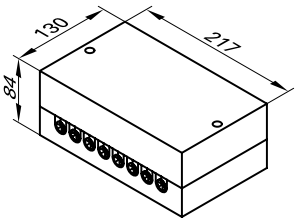
Rated voltage: 230 V~ Rated frequency: 50 Hz

Internal extension H2,
part no. 7179 144
Electronic PCB for installation into the control unit.
Using the extension enables the following functions to be achieved:

Function	Rated breaking capacity of the relay output
■ Interlocking of external exhaust fans	6(3) A 250 V~
as well as, alternatively, **one** of the following functions: ■ Connection of a DHW circulation pump ■ Connection of a heating circuit pump (stepped) for a directly connected heating circuit ■ Connection of a central fault messaging facility ■ Connection of a cylinder loading pump	2(1) A 250 V~

Rated voltage: 230 V~ Rated frequency: 50 Hz

External extension H1,
Part no. 7179 058
Function extension inside the equipment for wall mounting.
Using the extension enables the following functions (up to 8) to be achieved:

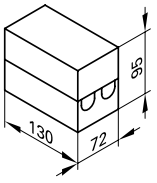


Function	Rated breaking capacity of the relay output
■ Connection of a central fault messaging facility	0.4(0.2) A 250 V~
■ Connection of a DHW circulation pump ■ Connection of a heating circuit pump (stepped) for a directly connected heating circuit ■ Connection of a cylinder loading pump	2(1) A 250 V~ in total max. 4 A~
■ Minimum boiler water temperature demand ■ External operating mode changeover ■ External blocking ■ Set boiler water temperature default via an 0 – 10 V input	

Rated voltage: 230 V~
Rated frequency: 50 Hz
Rated current: 4 A
Power consumption: 4 W
Safety class: I
Protection: IP 32

Permissible ambient temperature
■ during operation: 0 to +40 °C
Use in living space and boiler rooms (standard ambient conditions)
■ in storage and transport: –20 to +65 °C

External extension H2,
part no. 7179 265
Function extension inside the equipment for wall mounting.
Using the extension enables the following functions to be achieved:



Function	Rated breaking capacity of the relay output
■ Connection of a DHW circulation pump	2(1) A 250 V~ in total max. 4 A~
■ Minimum boiler water temperature demand ■ External operating mode changeover ■ External blocking	

Rated voltage: 230 V~
Rated frequency: 50 Hz
Rated current: 2 A
Power consumption: 3 W
Safety class: I
Protection: IP 32

Permissible ambient temperature
■ during operation: 0 to +40 °C
Use in living space and boiler rooms (standard ambient conditions)
■ in storage and transport: –20 to +65 °C

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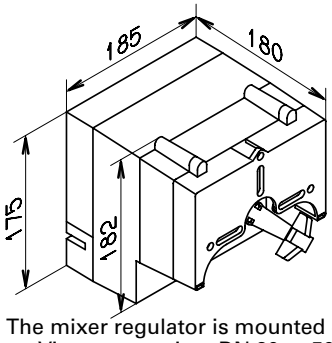
Vitotronic 200 and Vitotronic 333 accessories

Vitotronic 200 extension kit for one heating circuit with mixer
(KM BUS user),
part no. 7178 995

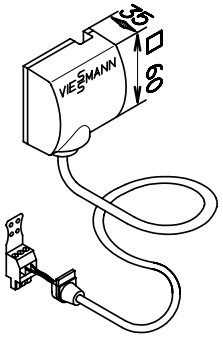
Mixer control



The mixer regulator is mounted directly on Viessmann mixer DN 20 to 50 and R ½" to 1¼".
The mixer regulator is a motorised control unit. Rotational direction may be reversed.
With connection plug for heating circuit pump, flow temperature sensor (contact sensor), mains and BUS connection.

Rated voltage:	230 V~
Rated frequency:	50 Hz
Rated current:	4(2) A
Power consumption:	6.5 W
Safety class:	⧈
Test class:	II
Protection:	IP 32 D to EN 60529
Permissible ambient temperature	
■ in operation:	0 to +40 °C
■ in storage and transport:	–20 to +65 °C
Relay output braking capacity for heating circuit pump 20:	4(2) A 230 V~
Motor:	
Torque:	3 Nm
Run time for 90° ∢:	2 minutes
Dead zone of the PI controller at a slope of 1.4:	±1.2 K

Flow temperature sensor (contact sensor)

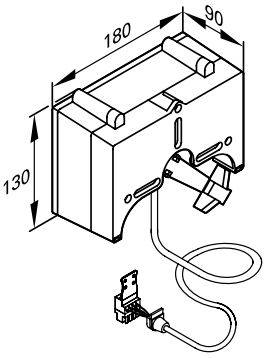


Secured with a tie. Cable length approx. 2 m, wired ready to plug in

Protection:	IP 32
Permissible ambient temperature	
■ in operation:	0 to +100 °C
■ in storage and transport:	–20 to + 70 °C

Vitotronic 333 extension kit for one heating circuit with mixer,
part no. 7450 650
comprising a mixer motor with connecting cable (4 m lang), plug-in connector and flow temperature sensor (contact temperature sensor).

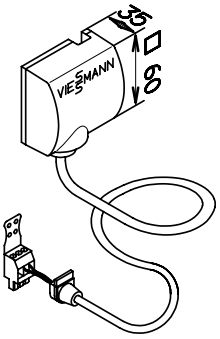
Mixer motor



The mixer motor is mounted directly on Viessmann mixer DN 20 to 50 and R ½" to 1¼".

Rated voltage:	230 V~
Rated frequency:	50 Hz
Power consumption:	4 W
Protection:	IP 42 to EN 60 529. Safeguard through design/ installation.
Permissible ambient temperature	
■ in operation:	0 to +40 °C
■ during storage and transport:	–20 to +65 °C
Torque:	3 Nm
Run time for 90° ∢:	2 minutes

Contact temperature sensor

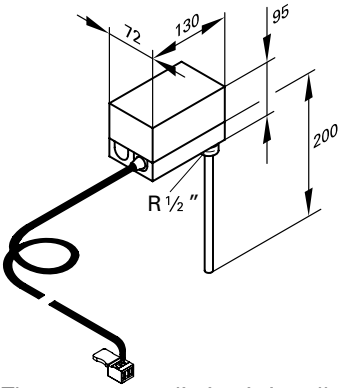


For recording the flow temperature.
Secured with a tie.
Cable length 5.8 m, ready to plug in.

Protection:	IP 32 to EN 60 529. Safeguard through design/ installation.
Permissible ambient temperature	
■ in operation:	0 to +130 °C
■ during storage and transport:	–20 to + 70 °C

Mixer motor for flanged mixer see control unit accessories, register 18.

Immersion thermostat
As temperature limiter for limiting the max. temperature of underfloor heating systems,
part no. 7151 728

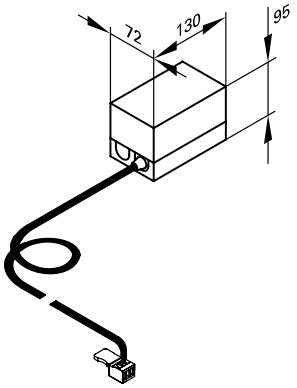


The temperature limiter is installed into heating flow and switches heating circuit pump OFF if flow temperature is too high.
With connecting cable (approx. 4 m long) and system plug.

Setting range:	30 to 80 °C
Switching differential:	max. 11 K
Breaking capacity:	6(1.5) A 250 V~
Setting scale:	inside casing
Stainless steel sensor well:	R ½" × 200 mm
DIN reg. no:	DIN TR 77703 or DIN TR 96803 or DIN TR 110302

or

Contact thermostat
As temperature limiter for limiting the max. temp. of underfloor heating systems,
part no. 7151 729
(only in conjunction with metallic pipes)



The temperature limiter is installed into heating flow and switches heating circuit pump OFF if flow temperature is too high.
With connecting cable (approx. 4 m long) and system plug.

Setting range:	30 to 80 °C
Switching differential:	max. 14 K
Breaking capacity:	6(1.5) A 250 V~
Setting scale:	inside casing
DIN reg. no:	DIN TR 77703 or DIN TR 96803 or DIN TR 110302

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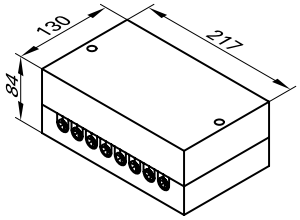
Function extension 0 – 10 V for Vitotronic 333
(KM BUS user),
part no. 7174 718



With leads/cables and plug-in connectors 40 and 145 supplied.
- to default a set flow temperature via a 0 – 10 V input for one temperature range from 10 to 100 °C
- to control a feed pump when connecting Vitotronic 050, e.g. in a sub-station
  or
- for signalling reduced mode and switching the heating circuit pump to a lower speed

Rated voltage:	230 V~
Rated frequency:	50 Hz
Power consumption:	3 W
Nominal breaking capacity of the relay output:	8(4) A 250 V
Protection:	IP 30 to EN 60 529. Safeguard through design/ installation.
Permissible ambient temperature	
■ in operation:	0 to +40 °C
■ during storage and transport:	–20 to +65 °C

LON communication module

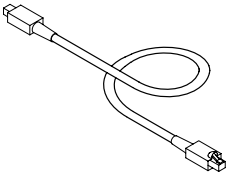
PCB for data exchange with Vitotronic 050, Vitocom 300 and for connecting to a higher level building management systems.

- for installation into Vitotronic 200 part no. 7179 113
- for installation into Vitotronic 333 part no. 7172 174

Cascade communication module for Vitotronic 100,
part no. 7179 062

For data exchange between the cascade control unit Vitotronic 333 and Vitotronic 100
PCB for installation into the Vitotronic 100 of the gas fired wall mounted boiler.

LON, connecting cable for data transfer between the control units (Vitotronic 333 to Vitotronic 050),
part no. 7143 495



Cable length 7 m, ready to plug in.

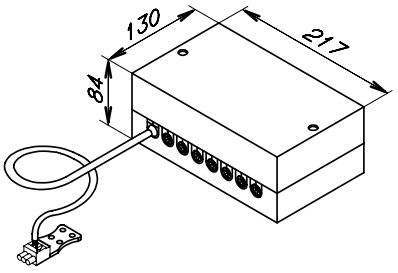
Connecting cable extension

- Installation distances between 7 and 14 m:
  – 2 connecting cables, part no. 7143 495
  – 1 LON connector RJ 45, part no. 7143 496
- Installation distances between 14 and 900 m:
  – 2 connecting cables, part no. 7143 495
  – 2-core cable, CAT 5 cable, screened, or JY(St) Y 2 × 2 × 0.8 (on-site)
  – LON socket RJ 45, CAT 6, part no. 7171 784 (2 pieces)

Terminator (2 pieces),
part no. 7143 497

To terminate the LON BUS at the first and last control unit.

KM BUS distributor,
part no. 7415 028



Including a 3.0 m long cable and LV plug-in connector.
For the connection of 2 to 9 devices to the Vitotronic KM BUS (e.g. Vitotrol, Control module V, etc.).
We recommend the use of the KM BUS distributor if two or more devices are used which are identified as KM BUS users.

Immersion temperature sensor,
part no. 7179 488
To record the low loss header temperature.

Cable length approx. 3.75 m, wired ready to plug in

Protection:	IP 32
Permiss. ambient temperature	
■ during operation:	0 to +90 °C
■ during storage and transport:	–20 to +70 °C

Cylinder temperature sensor
for Vitodens 300 from 49 kW,
part no. 7179 114

Cable length approx. 3.75 m, wired ready to plug in

Protection:	IP 32
Permiss. ambient temperature	
■ during operation:	0 to +90 °C
■ during storage and transport:	–20 to +70 °C

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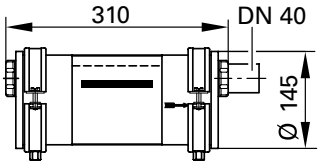
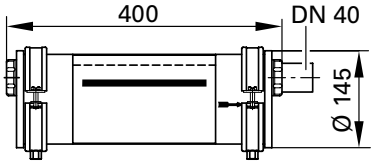
Vitodens 300 accessories

Neutralising system
for single boiler systems
with neutralising system
for Vitodens 300 up to 35.0 kW
part no. 7252 666

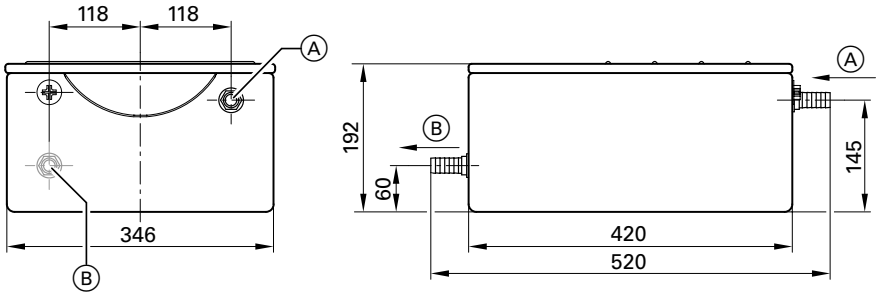


for Vitodens 300 with 49.0 and 66.0 kW
Part no. 9535 742



Neutralising granulate
(2 × 1.3 kg)
part no. 9524 670

Neutralising system
for multi-boiler systems
part no. 7226 141



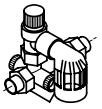
Ⓐ Inlet (DN 20)
Ⓑ Outlet (DN 20)

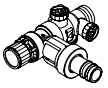
Neutralising granulate (8 kg)
part no. 9521 702

Safety equipment to DIN 1988
comprising:
- Shut-off valve
- Non-return valve and test nipple
- Pressure gauge connector
- Diaphragm safety valve
  - 10 bar
    - DN 15, up to 200 litres capacity
      part no. 7219 722

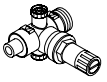
    - DN 20, for 300 litres capacity
      part no. 7180 662

  or for Vitocell-W 100 installed below the boiler
  - 10 bar, DN 15, corner version
    part no. 7180 097



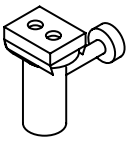


Pressure reducer (DN 15)
to match the safety assembly as corner version
part no. 7180 148



Drain funnel kit
part no. 7339 453
Drain funnel with siphon, bezel and drain pipe safety valve, excluding hose clip
in conjunction with
- DHW cylinder installed adjacent to a wall mounted boiler
- Freestanding DHW cylinder installed adjacent to the boiler
- DHW cylinder installed below the boiler (when fitted on finished walls)

Drain funnel kit
part no. 7339 753
Drain funnel with siphon, bezel, 2 hose clips and drain manifold (tee)
in conjunction with
- DHW cylinder installed below the boiler (when fitted on unfinished walls)

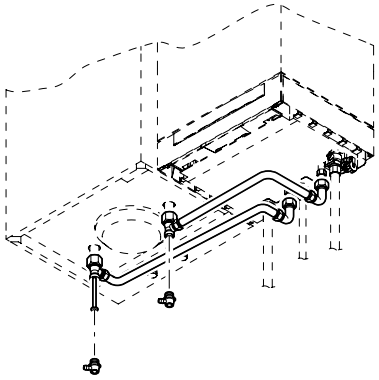


Installation accessories for Vitodens 300 (up to 35 kW)

Connection between Vitodens 300 and the DHW cylinder

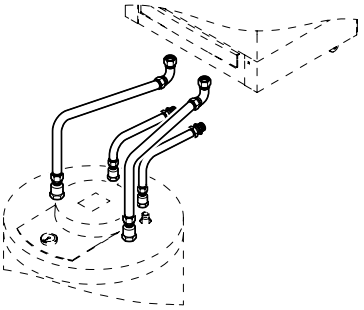
Connection set for wall mounted DHW cylinder Vitocell-W 100
comprising:
- Cylinder temperature sensor
- Heating water connection pipes
- Primary air vent valve

Installation on finished walls
DHW cylinder installed either on the **l.h. or the r.h. side** of Vitodens
part no. 7178 344



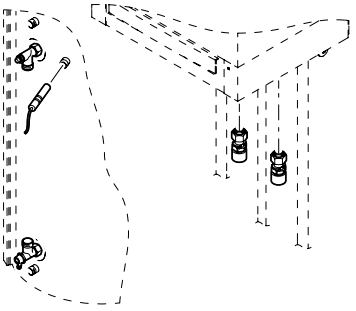
Connection set for DHW cylinders installed below the boiler Vitocell-W 100 with connection pipes
comprising:
- Cylinder temperature sensor
- Heating water connection pipes
- Secondary side connections

Installation on finished and unfinished walls
part no. 7178 347



Connection set for DHW cylinders installed adjacent to the boiler Vitocell-W 100 and 300
comprising:
- Cylinder temperature sensor
- Compression fittings (Rp ¾")

DHW cylinder installed either on the **l.h. or the r.h. side** of Vitodens
– Compression version
  part no. 7178 349
– Soldered version
  part no. 7178 348



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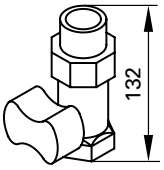
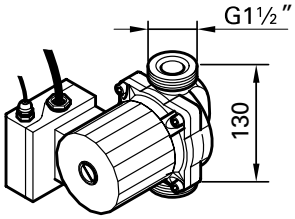
Accessories for the installation of Vitodens 300 with 49 and 66 kW

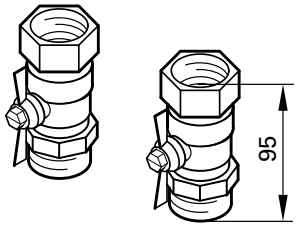
Straight-through gas valve R ¾″
with integral thermal safety shut-off valve
part no. 7341 019



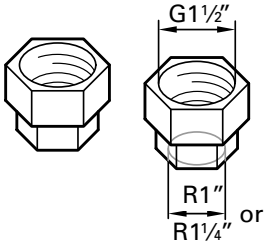
Heating circuit pump (variable speed)
part no. 7178 820



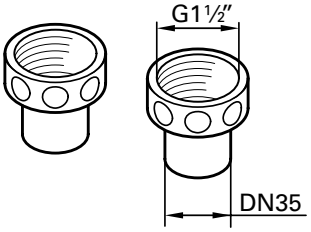
Shut off valves
Set of ball shut-off valves (2 pieces)
G 1½″
part no. 7341 020



Compression fittings (1 set)
incl. gasket
- G 1½″ - R 1″
  part no. 7307 293
- G 1½″ - R 1¼″
  part no. 7205 935



Solder fittings (1 set) G 1½″ - DN 35
incl. gaskets
part no. 7339 921



As delivered condition

Vitodens 300 (up to 35 kW)

Gas fired condensing boiler with Inox-Radial heating surface, modulating MatriX-compact gas burner for natural gas and LPG to DVGW Code of practice G260, aqua-plate with multi-connect system and variable speed heating circuit pump (4.5 to 12 kW with two stage heating circuit pump).
Fully plumbed and wired.

Colour of the epoxy-coated casing: white

For combination boilers 6.6 to 26.0 kW:
Standby plate heat exchanger for DHW heating.
Packed separately:
Vitotronic 100 for constant temperature mode
or
Vitotronic 200 for weather-compensated mode

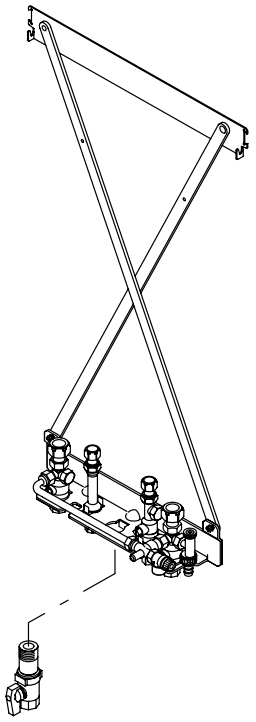
Natural gas version

Vitodens 300 is factory-set for natural gas E.
A conversion kit for conversion to natural gas LL or LPG is supplied to order.

Accessories required subject to installation method (order separately)

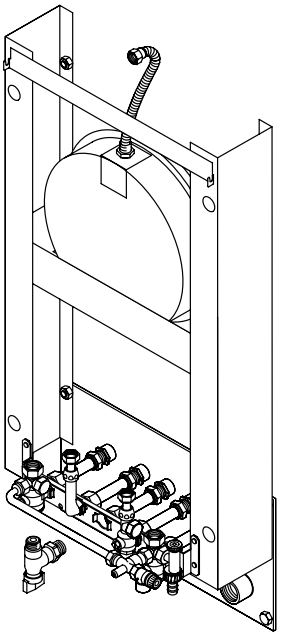
Vitoplus installation directly on a wall
Installation template with:
- Fixing components
- Fittings
- Gas stop cock R ½" incl. thermal safety shut-off valve.

For installation on finished or unfinished walls with compression fittings.



or with mounting frame
Mounting frame (depth 130 mm) with:
- Diaphragm expansion vessel (11 litres, ∅ 400 mm)
- Fittings
- Fixing elements
- Boiler fill and drain valve
- Gas angle valve R ½" with thermal safety shut-off valve.

For installation on finished or unfinished walls with compression or solder fittings.



Vitodens 300 (from 49 kW)

Gas fired condensing boiler with Inox-Radial heating surface, modulating MatriX-compact gas burner for natural gas and LPG to DVGW Code of practice G260, and aqua-plate with multi-connect system.
Fully plumbed and wired.

Colour of the epoxy-coated casing: white.

Packed separately:
Vitotronic 100 for constant temperature mode
or
Vitotronic 200 for weather-compensated mode

Multi-boiler systems

Multi-boiler systems for open flue operation with 2, 3 or 4 boilers with
- flue gas cascade, comprising:
  - Non-return valve
  - Flue pipe
  - End piece with condensate drain

and
- weather-compensated cascade control Vitotronic 333.

Natural gas version

Vitodens 300 is factory-set for natural gas E.
A conversion kit is supplied to order for natural gas LL.
Conversion to LPG is not possible.

LPG version

Vitodens 300 is factory-set for LPG and may be converted to natural gas.
Gas governor integrated into the equipment.

Note
Order circulation pumps for heating circuit and DHW loading separately.

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Design information

Positioning

- Do not use where air is polluted with halogenated hydrocarbons (e.g. as in aerosols, paints, solvents and cleaning agents)
- Avoid very dusty conditions
- Avoid high levels of humidity
- Prevent freezing and ensure good ventilation

Otherwise, the system may suffer faults and damage.

In rooms where **air contamination through halogenated hydrocarbons** can occur, such as hairdressing salons, printing shops, chemical cleaners, laboratories, etc., Vitodens 300 may only be installed if adequate measures can be taken to provide a supply of uncontaminated combustion air.
If in doubt, please contact us.

If these instructions are not observed, any consequential loss directly related to any of these causes will be excluded from our warranty.

Vitodens 300 (up to 49 kW) for balanced flue operation

As device type C_{13x}, C_{33x}, C_{43x}, C_{53x} or C_{63x} to TRGI '86/96, Vitodens 300 can be installed for **balanced** flue operation, **irrespective** of size and ventilation of the boiler room.
It may, for example, be installed in rooms with personnel traffic or in the living area, in ancillary rooms without ventilation, in cupboards and niches without maintaining minimum clearances to combustible components as well as in attic rooms (pitched attics and long pane rooms of a roof) where the balanced flue air supply/exhaust pipe can be directly routed through the roof.

Vitodens 300 with 66 kW
Install Vitodens 300 with 66 kW in accordance with local regulations in a separate boiler room. Fit the mains electrical isolator outside the installation room.

Vitodens 300 in open flue operation
(type B_{23} and B_{33})

Installation is only permissible if a direct ventilation aperture (which cannot be closed) with a clear cross-section of at least 150 cm^2 is provided (to TRGI '86/96). Installation in living areas or other accommodation is **not** possible (exception: operation in areas with interconnected room air supply).
Secure Vitodens 300 near the chimney stack/duct.

Flue gas systems

The plain flue pipe must be type approved by the Deutschen Institut für Bautechnik (DIBt) [Germany] (**open** flue operation).

Viessmann balanced flue systems for **balanced** flue operation
- vertical roof outlet,
- external wall terminal,
- horizontal roof outlet,
- separate ventilation and flue gas pipes,
- outside panel outlet as dual pipe design

are tested and CE designated together with Vitodens as one structural unit in accordance with DVGW.
Balanced flue system components in accordance with approval certificate Z 7.2-1104 can be used for connection to a LAS or existing LAS chimney.
For detailed descriptions of the flue gas system, see Vitodens Technical Guide.

Flue gas temperature protection

Viessmann balanced flue systems for **balanced** flue operation
- vertical roof outlet,
- external wall terminal,
- horizontal roof outlet,
- separate ventilation and flue gas pipes,
- outside panel outlet as dual pipe design

are tested and CE-designated together with Vitodens 300 as one structural unit, in accordance with DVGW.
If a different flue pipe is used on site, ensure connection in accordance with the Directive for approval of flue gas systems with low temperature flue gas. For Vitodens 300, these are flue pipes type B (max. permiss. flue gas temperature 120 °C).

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Selection of rated output

Select the boiler according to the required heat demand, including DHW demand. The rated output of condensing boilers may be higher than the calculated heat demand of the building in question.

The standard efficiency of condensing boilers remains constant over a wide range of boiler loads. It remains almost unchanged even if the heat output is twice as high as the heat demand.

System design

- The boiler water temperature is limited to 74 °C.
  To minimise distribution losses, we recommend that you size the heat distribution system and the DHW heating system for a max. flow temperature of 70 °C.
- Depending on local regulations, the installation of a condensing boiler may need to be notified or authorised.
- If possible, install no mixing devices in heating circuits, because the utilisation of condensing technology demands low return temperatures.
  Use only three-way mixers where mixers are required, e.g. for multi-circuit or underfloor heating systems.

Safety equipment

Boilers for hot water heating systems and with a safety temperature of max. 110 °C are equipped with a type-tested safety valve in accordance with EN 12828 and in accordance with their type approval.

Underfloor heating

For underfloor heating, we recommend the use of impermeable pipes to prevent the infusion of oxygen through the pipe walls. Provide system separation in underfloor heating systems for plastic pipes (DIN 4726) which are non-impermeable. We supply separate heat exchangers for this purpose.

Connect underfloor heating systems and heating circuits with very large water content (> 15 litres/kW) to the boiler via a three-way mixer, even when using condensing boilers. See Technical Guide on control of underfloor heating systems or Vitodens Technical Guide.

Install a temperature limiter into the underfloor heating circuit to limit the maximum temperature.
Observe DIN 18560-2.

Plastic pipe systems for radiators

We also recommend the installation of a temperature limiter to limit the maximum temperature for plastic heating pipework in heating circuits with radiators.

Low water indicator

According to EN 12828, special low water level protection can be omitted for boilers up to 300 kW, as long as heating can be reliably prevented when the water level is too low.
Viessmann Vitodens 300 are equipped with a low water indicator (boil-dry protection). Tests have verified that the burner will be automatically switched OFF in the event of water shortage due to a leak in the heating system, before the boiler or flue gas systems reach unacceptably high temperatures.

Notification

Within four weeks of the initial commissioning, the operator may need to notify the local chimney sweep accordingly (check local regulations).

Condensate and neutralisation

See Vitodens Technical Guide.

Additional requirements when installing boilers with liquid gas operation in rooms below ground level

According to TRF 1996 volume 2 – valid since 1 September 1997 – an external safety solenoid valve is no longer required when installing Vitodens 300 boilers below ground level.
However, the high safety standard derived from the use of an external safety solenoid valve has proved to be valuable. We therefore recommend the installation of an external safety solenoid valve plus the internal extension H1, when installing Vitodens 300 in rooms below ground level.

Technical guide

For further details regarding the design and sizing, see Vitodens Technical Guide.

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